

637873

REPORT NUMBER: 214-CAL-05-06

**SAFETY COMPLIANCE TESTING FOR FMVSS 214
SIDE IMPACT PROTECTION
INDICANT**

TOYOTA MOTOR MANUFACTURING
2005 TOYOTA AVALON
4-DOOR SEDAN

NHTSA NUMBER: C55108

CALSPAN TEST NUMBER: 8675-F214-25

CALSPAN
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



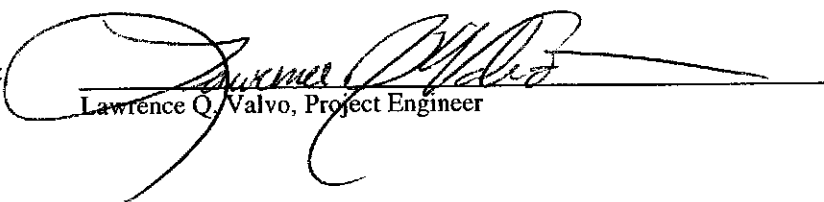
April 19, 2005

FINAL REPORT


U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
400 Seventh Street, SW
Room 6111 (NVS-220)
Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-02-D-01114. This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufactures' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By:


Lawrence Q. Valvo, Project Engineer

Approved By:

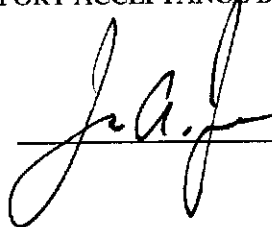

David J. Travale, Program Manager
Transportation Sciences Center

Approval Date:

June 9, 2005

FINAL REPORT ACCEPTANCE BY:

Accepted By:



Acceptance Date:

6/16/05

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. 214-CAL-05-06		2. Government Accession No.		3. Recipient's Catalog No.																															
4. Title and Subtitle Final Report of FMVSS 214 Compliance Side Impact Testing of a 2005 Toyota Avalon 4-Door Sedan NHTSA No.: C55108				5. Report Date April 19, 2005																															
				6. Performing Organization Code CAL																															
7. Author(s) Lawrence Q. Valvo, Project Engineer David J. Travale, Program Manager				8. Performing Organization Report No. 8675-F214-25																															
9. Performing Organization Name and Address Calspan Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225				10. Work Unit No.																															
				11. Contract or Grant No. DTNH22-02-D-01114																															
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance 400 Seventh Street, SW, Room 6111 Washington, D.C. 20590				13. Type of Report and Period Covered Final Report, April 2005																															
				14. Sponsoring Agency Code NVS-220																															
15. Supplementary Notes																																			
16. Abstract A 55/28 kph 90° Side Impact (Moving Deformable Barrier) Indicant Test was conducted on the subject Toyota Avalon 4-Door Sedan. This test was performed at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 26, 2001). This test was conducted at the Calspan Transportation Sciences Center Crash Test Facility in Buffalo, New York, on April 19, 2005. The impact velocity of the Moving Deformable Barrier (MDB) was 62.12 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21°C. The target vehicle post-test maximum crush was 322 mm at level 2. The test or target vehicle's performance is given below: <table border="0" style="width: 100%;"> <thead> <tr> <th></th> <th style="text-align: center;"><u>Front SID H3</u></th> <th></th> <th style="text-align: center;"><u>Rear SID H3</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td style="text-align: center;">38.9</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">54.6</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td style="text-align: center;">35.5</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">53.8</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td style="text-align: center;">32.9</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">57.2</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI):</td> <td style="text-align: center;">36</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">56</td> <td style="text-align: center;">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td style="text-align: center;">55</td> <td style="text-align: center;">g's</td> <td style="text-align: center;">63</td> <td style="text-align: center;">g's</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.							<u>Front SID H3</u>		<u>Rear SID H3</u>		Left Upper Rib Acceleration:	38.9	g's	54.6	g's	Left Lower Rib Acceleration:	35.5	g's	53.8	g's	Lower Spine Acceleration:	32.9	g's	57.2	g's	Thoracic Trauma Index (TTI):	36	g's	56	g's	Pelvis Acceleration (PEV):	55	g's	63	g's
	<u>Front SID H3</u>		<u>Rear SID H3</u>																																
Left Upper Rib Acceleration:	38.9	g's	54.6	g's																															
Left Lower Rib Acceleration:	35.5	g's	53.8	g's																															
Lower Spine Acceleration:	32.9	g's	57.2	g's																															
Thoracic Trauma Index (TTI):	36	g's	56	g's																															
Pelvis Acceleration (PEV):	55	g's	63	g's																															
17. Key Words Compliance Testing Side Impact Protection FMVSS 214 Side Impact Dummy (SID)			18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division (TIS) Room 5108 (NPO-230) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946																																
19. Security Classification of Report UNCLASSIFIED		20. Security Classification of Page UNCLASSIFIED		21. No. of Pages 274																															
22. Price																																			

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND TEST PROCEDURE	1-1
2	SUMMARY OF SIDE IMPACT TEST	2-1
3	SUMMARY OF TEST RESULTS	3-1
	Data Sheet 1 - General Vehicle Test Parameter Data	3-2
	Data Sheet 2 - Test Vehicle Summary of Results	3-5
	Data Sheet 3 - Moving Deformable Barrier (MDB) Summary	3-6
	Data Sheet 4 - Post Test Observations	3-7
4	OCCUPANT AND VEHICLE INFORMATION	4-1
	Data Sheet 5 - SID HYBRID III Instrumentation Data	4-2
	Data Sheet 6 - Vehicle Pre- And Post Test Measurements	4-3
	Data Sheet 7 - SID HYBRID III Longitudinal Clearance Dimensions	4-4
	Data Sheet 8 - SID HYBRID III Lateral Clearance Dimensions	4-5
	Data Sheet 9 - Vehicle Side Measurements	4-6
	Data Sheet 10 - Vehicle Exterior Crush Profiles - All Levels	4-7
	Data Sheet 11 - Vehicle Damage Profile Distances	4-8
	Data Sheet 12 - Exterior Static Crush For Impactor Face	4-9
	Data Sheet 13 - Test Vehicle Accelerometer Locations And Data Summary	4-10
	Data Sheet 14 - MDB Accelerometer Locations and Data Summary	4-13
	Data Sheet 15 - High Speed Camera Locations and Data	4-14
5	VEHICLE FUEL SYSTEM INTEGRITY	5-1
	Data Sheet 16 - FMVSS 301 Fuel System Integrity Data	5-2
	Data Sheet 17 - FMVSS 301 Rollover Data	5-3
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	VEHICLE, MDB AND SID HYBRID III RESPONSE DATA	B-1
APPENDIX C	SID HYBRID III CONFIGURATION AND PERFORMANCE VERIFICATION DATA	C-1
APPENDIX D	TEST EQUIPMENT LIST AND CALIBRATION INFORMATION	D -1

SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FMVSS 214 Side Impact Protection Compliance Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-02-D-01114. The purpose of this indicant test was to evaluate side impact protection in a 2005 Toyota Avalon 4-Door Sedan when tested at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 26, 2001).

SECTION 2

SUMMARY OF SIDE IMPACT TEST

This Side Impact Protection Indicant Test was performed at the New Car Assessment Program (NCAP) target test velocity of 62.0 kph, which is 8 kph faster than the target velocity required by the Office of Vehicle Safety Compliance's Laboratory Test Procedure (TP-214D-06, dated July 26, 2001).

A 2005 Toyota Avalon 4-Door Sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 62.12 kph (38.6 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Calspan Transportation Sciences Center in Buffalo, New York on April 19, 2005. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the Side Impact Hybrid III Dummies (SID H3s) are included in Appendix A.

Two restrained Side Impact Hybrid III Dummies (SID H3s) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OCWS Side Impact Laboratory Test Procedure which is dated July, 1997. The side impact test was documented by one real-time camera and 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID H3s were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)
5. Head triaxial accelerometers (X-, Y- and Z-direction)
6. Upper neck force and moment (X-, Y and Z-direction) load cells

A summary of the Side Impact Hybrid III Dummy (SID H3) configuration and verification test data can be found in Appendix C. A total of 60 channels of data were recorded. Appendix B contains the vehicle, MDB and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID H3	Rear SID H3
TTI (g)	36	56
PEV (g)	55	63

AIR BAG DEPLOYMENT STATUS

	DRIVER	FRONT PASSENGER	REAR PASSENGER
Front Air Bag	No	No	N/A
Knee Bolster Bag	N/A	N/A	N/A
Side Air Bag	Yes	No	N/A
Side Curtain Bag	Yes	No	Yes

AUTOMATIC DOOR LOCK SUMMARY

ADL Equipped Test Vehicle:	Yes
ADL Activation Status:	Deactivated
Struck Side Door Lock Condition:	Unlocked

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2005 Toyota Avalon 4-Door Sedan

Vehicle Body Color: Silver VIN: 4T1BK36B65U002361

Vehicle NHTSA No.: C55108 Month & Year of Manufacture: 01/05

Engine Data: 6 Cylinders; - CID; 3.5 Liters; - cc

Engine Placement: - Longitudinal; or X Lateral

Transmission: 6 Speed; - Manual; X Automatic; X Overdrive

Final Drive: - Rear Wheel Drive; X Front Wheel Drive; - Four Wheel Drive

Odometer Reading 138 km

Supplemental Airbag Restraints:

Front Occupant: X Frontal; - Knee; X Side; X Curtain

Rear Occupant: - Frontal; - Knee; - Side; X Curtain

Options:

X ADL; X A/C; X Power Steering; X Power Brakes; X Power Windows

DATA FROM TIRE PLACARD

Recommended Tire Size: P215/60R16

* Recommended Cold Tire Pressure: 200 kpa FRONT; 200 kpa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P215/60R16 94V; Manufacturer: Bridgestone

Tire Pressure with Maximum Capacity Vehicle Load: Front: 300 kPa; Rear: 300 kPa

Treadwear: 160; Traction: A; Temperature: A

VEHICLE CAPACITY DATA:

Number of Occupants: 2 Front; 3 Rear; - 3rd Seat; 5 Total

Type of Front Seats: X Bucket; - Bench; - Split Bench;

Type of Rear Seats: - Bucket; X Bench; - Split Bench; - Contoured

Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob

Type of Rear Seat Back: - Fixed; X Adjustable with X Lever or - Knob

Vehicle Max Capacity Loading = 397.0 kg (A)

No. of Occupants x 68.04 kg. = 340.2 kg (B)

Vehicle Cargo Capacity = 56.8 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front = 493.0 kg Left Rear = 314.5 kg

Right Front = 488.5 kg Right Rear = 297.0 kg

TOTAL FRONT = 981.5 kg TOTAL REAR = 611.5 kg

% of Total Weight = 61.6 % % of Total Weight = 38.4 %

TOTAL WEIGHT = 1593.0 kg

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1593.0</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>56.8</u>	kg (B)
Weight of instrumented SID H3 Dummies (2 X 81.2 kg)	=	<u>162.4</u>	kg (C)
TEST VEHICLE TARGET WEIGHT:	=	<u>1812.2</u>	kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 2 SID H3(s) + CARGO):

Left Front	=	<u>545.0</u>	kg	Left Rear	=	<u>415.0</u>	kg
Right Front	=	<u>487.0</u>	kg	Right Rear	=	<u>364.0</u>	kg
TOTAL FRONT	=	<u>1032.0</u>	kg	TOTAL REAR	=	<u>779.0</u>	kg
% of Total Weight	=	<u>57.0</u>	%	% of Total Weight	=	<u>43.0</u>	%
TOTAL TEST WEIGHT =				<u>1811.0</u> kg			

AS TESTED WEIGHT OF TEST VEHICLE (1 OR 2 SID H3(s) + CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>541.0</u>	kg	Left Rear	=	<u>405.0</u>	kg
Right Front	=	<u>487.0</u>	kg	Right Rear	=	<u>371.0</u>	kg
TOTAL FRONT	=	<u>1028.0</u>	kg	TOTAL REAR	=	<u>776.0</u>	kg
% of Total Weight	=	<u>57.0%</u>	%	% of Total Weight	=	<u>43.0%</u>	%
TOTAL TEST WEIGHT =				<u>1804.0</u> kg			

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front	<u>711</u>	Right Front	<u>714</u>	Left Rear	<u>726</u>	Right Rear	<u>728</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

FULLY LOADED:

Left Front	<u>695</u>	Right Front	<u>708</u>	Left Rear	<u>684</u>	Right Rear	<u>699</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

READY FOR TEST:

Left Front	<u>699</u>	Right Front	<u>712</u>	Left Rear	<u>687</u>	Right Rear	<u>699</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

Test Vehicle Wheelbase: 2819 millimeters

C.G. = 1213 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side =	<u>4865</u>	millimeters
Left Side =	<u>4865</u>	millimeters
Centerline =	<u>5010</u>	millimeters

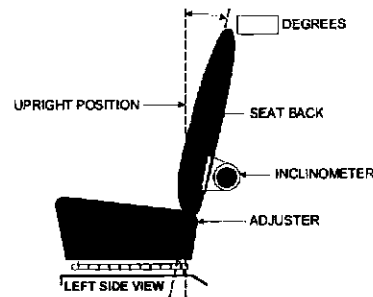
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



FRONT SEAT ASSEMBLY

FRONT SEAT CUSHION PLACEMENT: The seat cushion was placed at the middle of its absolute fore/aft travel

Total Length of Adjustment Travel: 265 millimeters

Total Number of Adjustment Positions or Detents: Not applicable (power seats)

FRONT SEAT BACK ADJUSTMENT POSITION:

Head restraint post is 3° back from vertical without the ATD in the seat (8° back from the forward most locking position)

Seat Back Torso Angle: 23.5 degrees (as measure with the H-point machine)

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: 0 millimeters

Seat Back Adjustment Position: Head restraint post is 7.3° back from vertical without the ATD in the seat (Forward most locking position)

ADJUSTABLE STEERING COLUMN POSITION:

The tilt mechanism was placed in detent 4, where the upper-most position is defined as 0; The telescoping mechanism was placed at the middle of its 45 mm travel

WINDOW POSITIONS: Left Front: Closed

Left Rear: Closed

Right Front: Open

Right Rear: Open

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

AUTOMATIC DOOR LOCKS: Is test vehicle equipped with ADLs? X Yes - No

Does vehicle owner's manual describe how to deactivate ADLs? X Yes - No - N/A

Comments: None

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

70.0 liters (Fuel Tank Usable Capacity)

65.5 liters used for test (92%-94% of Fuel Tank Usable Capacity)

LOCATION OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

Wheelbase = 2819 millimeters

Impact Point is 469.5 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 469.5 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 2005 Toyota Avalon

Body Style: 4-Door Sedan

VIN: 4T1BK36B65U002361

NHTSA No.: C55108

Test Date: April 19, 2005

Overall Length = 5010 millimeters; Overall Width = 1850 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 541.0 kg Left Rear = 405.0 kg

Right Front = 487.0 kg Right Rear = 371.0 kg

TOTAL FRONT = 1028.0 kg TOTAL REAR = 776.0 kg

TOTAL VEHICLE WEIGHT 1804.0 kg

Wheelbase = 2819 millimeters

Longitudinal C.G. from Center of Front Axle = 1213 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 0 mm from of nominal impact ref. line (Lateral)

Actual Impact Point is 9 mm below nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (222 mm above ground) = 56 millimeters

2. LEVEL 2 (508 mm above ground) = 322 millimeters

3. LEVEL 3 (611 mm above ground) = 278 millimeters

4. LEVEL 4 (872 mm above ground) = 233 millimeters

5. LEVEL 5 (1396 mm above ground) = 77 millimeters

Maximum Post-Test Intrusion = 322 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification SID H3/269 SID H3/270

Restraints Used 3-point seat belt, side impact airbag and side curtain airbag 3-point seat belt and side curtain airbag

INSTRUMENTATION:

Number of Vehicle Data Channels: = 21

Number of Cameras: Onboard = 3

Offboard = 7

TOTAL = 10

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore: 213B0104; 068B030453

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>1250</u>	millimeters
Overall Length of MDB (incl. honeycomb impact face)	=	<u>4120</u>	millimeters
Wheelbase of Framework Carriage	=	<u>2590</u>	millimeters
Tread of Framework Carriage (Front & Rear)	=	<u>1875</u>	millimeters
C.G. Location Rearward of Front Axle	=	<u>1104</u>	millimeters

MDB WEIGHT:

Left Front	=	<u>409.5</u>	kg	Left Rear	=	<u>281.5</u>	kg
Right Front	=	<u>372.5</u>	kg	Right Rear	=	<u>299.0</u>	kg
TOTAL FRONT =		<u>782.0</u>	kg	TOTAL REAR =		<u>580.5</u>	kg
TOTAL MDB WEIGHT =		<u>1362.5</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L)	=	<u>90</u>	degrees				
Impact Speed	=	<u>62.12</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>172</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>84</u>	millimeters
3. Row C at Mid Level	=	<u>89</u>	millimeters
4. Row D at Top of Stack Level	=	<u>131</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108

TEST DUMMY INFORMATION AND CONTACT POINTS:

DESCRIPTION	FRONT SEAT	REAR SEAT
ATD Type/Serial No.	SID H3/269	SID H3/270
Head Contact:	Head to side curtain airbag	Head to side curtain airbag and side header trim
Upper Torso Contact:	Arm to side impact airbag	Arm to side curtain airbag and upper door trim above the arm rest
Lower Torso Contact:	Pelvis to door trim below armrest	Pelvis to door trim below the arm rest
Left Knee Contact:	Left knee to door trim	Left knee to door trim
Right Knee Contact:	Right knee to left knee	Right knee to left knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

DESCRIPTION	FRONT	REAR
Left Side Doors	Closed, latched, and inoperable without tools	Closed, latched, and inoperable without tools
Right Side Doors	Closed, latched, and operable without tools	Closed, latched, and operable without tools
Hatch/Other Door	N/A	N/A
Seat Movement (mm)	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

CRITICAL AREAS OF PERFORMANCE	
Pillar Performance	No visible tears or separations
Sill Separation	None
Windshield Damage	None
Window Damage	The driver side window and left rear passenger side window shattered during the event.
Other Notable Effects	None

AIR BAG DEPLOYMENT STATUS:

	DRIVER	FRONT PASSENGER	REAR PASSENGER
Front Air Bag	No	No	N/A
Knee Bolster Bag	N/A	N/A	N/A
Side Air Bag	Yes	No	N/A
Side Curtain Bag	Yes	No	Yes

MDB LEFT EDGE IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	± 50 mm	0 mm from target
Vertical Offset	mm	± 20 mm	9 mm below target

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID H3 INSTRUMENTATION DATA

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108

		Front Dummy ID# 269				Rear Dummy ID# 270			
		Pos. Direction		Neg. Direction		Pos. Direction		Neg. Direction	
		Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
HEAD ACCELERATIONS:									
Longitudinal	X	6.5	187.5	-22.1	59.3	4.3	187.5	-10.8	89.4
Lateral	Y	33.1	56.0	-5.4	189.2	92.5	50.8	-7.2	76.4
Vertical	Z	15.8	50.9	-1.8	114.5	19.6	46.9	-32.7	63.4
Resultant	R	41.4	57.2	-	-	93.6	50.8	-	-
HIC		157.7				414.0			
NECK FORCES:									
Longitudinal	X	60.2	34.6	-620.0	58.8	609.8	68.6	-54.0	107.3
Lateral	Y	238.7	59.2	-242.7	32.5	152.4	152.3	-1088.2	68.3
Vertical	Z	598.8	50.6	-204.7	69.5	803.4	107.1	-1432.9	68.1
Resultant	R	818.6	58.7	-	-	1898.2	68.2	-	-
NECK MOMENTS:									
X		16.6	64.6	-31.2	45.6	17.6	137.6	-31.4	65.4
Y		35.2	76.3	-48.8	57.8	25.1	96.4	-3.9	199.9
Z		36.9	73.0	-11.4	199.9	6.2	106.1	-13.8	67.1
Resultant R		51.5	76.2	-	-	35.4	65.4	-	-
RIB ACCELERATIONS:									
Upper Rib Lateral	Y	38.9	47.5	-3.8	163.1	54.6	45.6	-33.7	105.0
Upper Rib Lateral	Y(R)	39.0	46.9	-4.0	163.7	54.5	45.6	-34.0	105.6
Lower Rib Lateral	Y	35.5	35.6	-4.3	163.7	53.8	45.0	-11.4	110.0
Lower Rib Lateral	Y(R)	35.7	35.6	-4.5	163.7	52.8	45.0	-15.5	106.3
SPINE ACCELERATIONS:									
Lower Lateral	Y	32.9	40.0	-6.4	93.8	57.2	50.0	-9.2	77.5
Lower Lateral	Y(R)	33.1	40.0	-6.1	93.8	56.3	50.0	-9.1	77.5
PELVIC ACCELERATIONS:									
Lateral	Y	54.9	29.3	-13.4	56.9	62.9	45.0	-5.2	65.7
Lateral	Y(R)	55.2	29.3	-13.5	56.9	64.6	45.0	-5.4	65.7

REFERENCE: Positive Direction: Longitudinal (X) = forward; Lateral (Y) = to right; Vertical (Z) = down

Note: Rib, Spine and Pelvis data has been FIR filtered, Y(R) denotes redundant Y direction accelerometer.

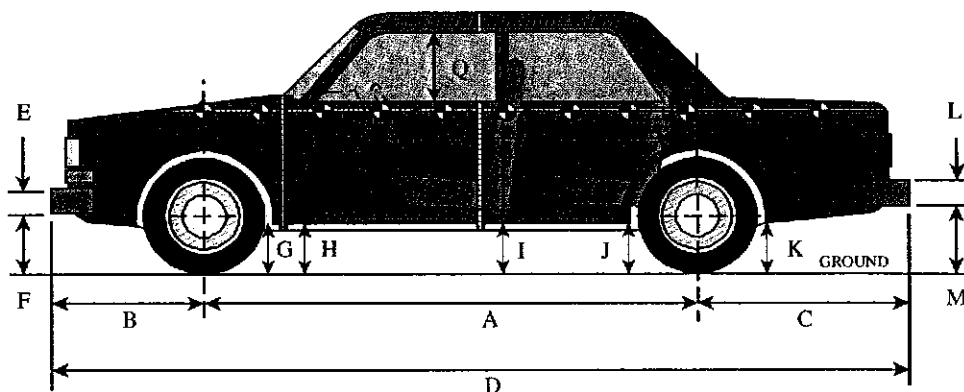
Head Accelerations and Neck Forces are filtered at SAE Class 1000, Neck Moments are filtered at SAE Class 600.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



LEFT SIDE VIEW

NOTE: all dimensions are in millimeters with tolerance of ± 3 mm

	PRE-TEST (as delivered)	PRE-TEST (as tested)	POST-TEST (as tested)	Δ CHANGE
A	2815	2819	2798	-21
B	990	-	1004	14
C	1205	-	1191	-14
D	5010	-	4993	-17
E	275	-	275	0
F	235	235	250	15
G	180	166	171	5
H	183	169	171	2
I	196	165	171	6
J1	212	177	206	29
J2	196	161	184	23
K	233	191	215	24
L	380	-	380	0
M	325	280	286	6
N	728	-	615	-113
O	867	-	843	-24
P	1139	-	1062	-77
Q	440	-	418	-22
R	4865	-	4875	10
S	4865	-	4854	-11
T	1850	-	1796	-54

D = Length at Centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-Pillar

J1 = To Pinch Weld

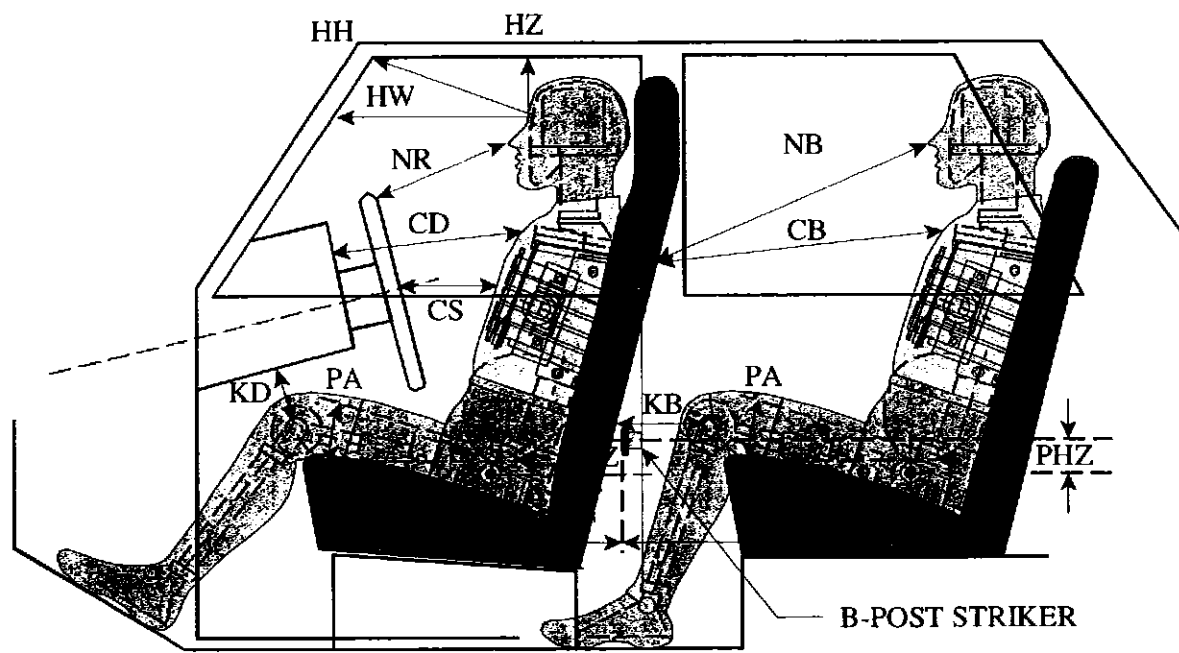
J2 = To Sill

DATA SHEET 7

SID H3 LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

NOTE: All dimensions are in millimeters with tolerance of ± 3 mm

	DRIVER ID# 269	LEFT REAR PASS. ID# 270
HH	427	N/A
HW	715	N/A
HZ	186	127
NR/NB	485	730
CD/CB	593	668
CS	325	N/A
KDL(KDA°)/KBL(KBA°)	145 / (30 °)	288 / (33 °)
KDR(KBA°)/KBR(KBA°)	130 / (30 °)	296 / (33 °)
PA°	23.9°	24.5°
PHX	237	293
PHZ	202	282

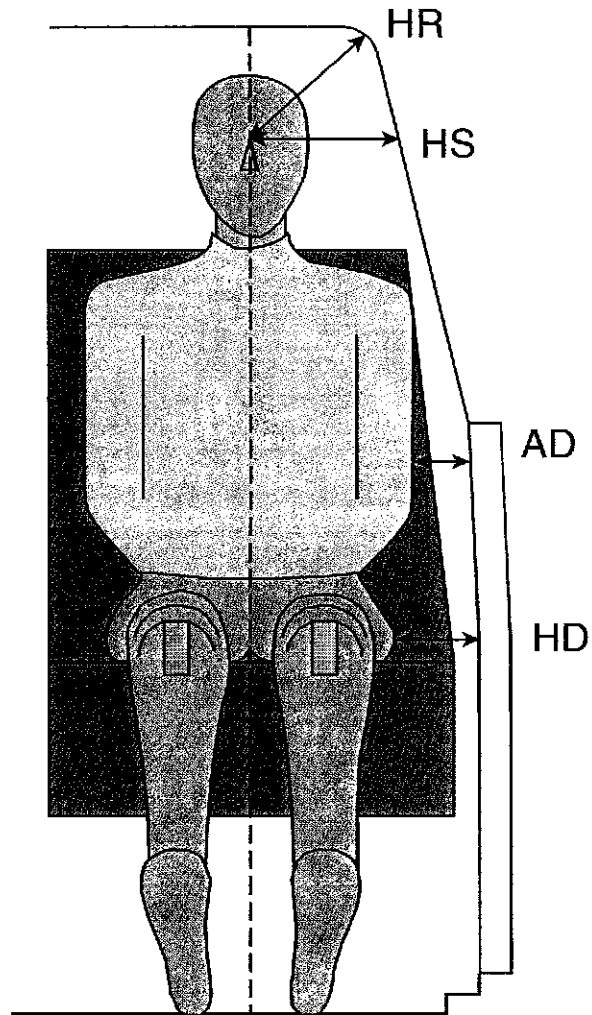
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID H3 LATERAL CLEARANCE DIMENSIONS

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



NOTE: All dimensions are in millimeters with tolerance of ± 3 mm

	DRIVER ID # 269		LEFT REAR PASS. ID # 270	
HR	227		185	
HS	349		325	
AD*	LOWER: 142	UPPER: 130	LOWER: 131	UPPER: 155
HD	149		166	

* Lower measurement is taken laterally at the center of the lower rib accelerometer height from the SID H3 arm to the closest part of the vehicle side.

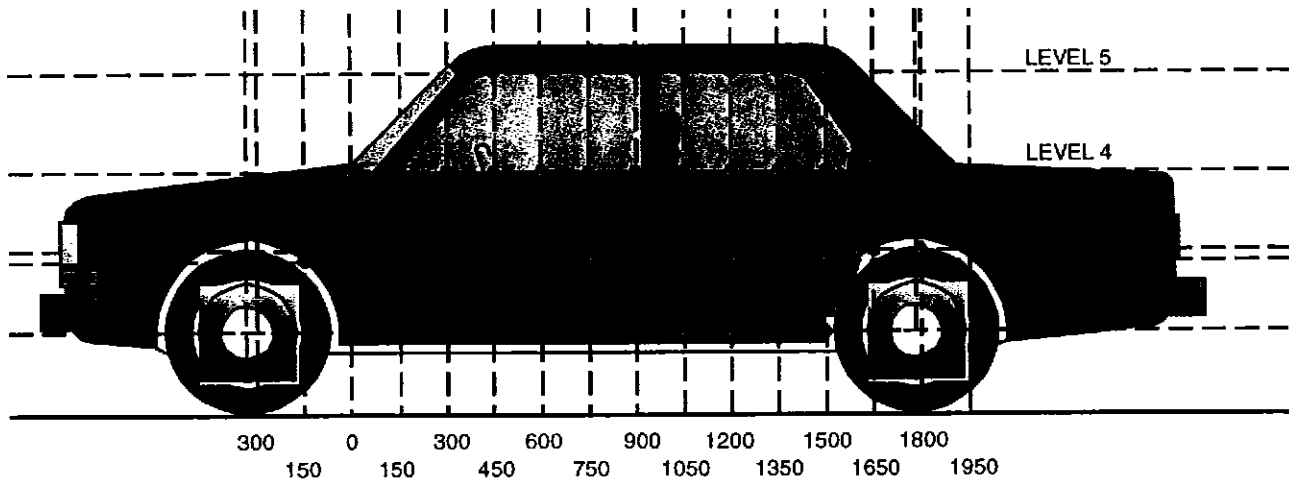
Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID H3 arm to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



LEFT SIDE VIEW

NOTE: All measurements are in millimeters (mm)

LEVEL 5 - WINDOW TOP
LEVEL 4 - WINDOW SILL
LEVEL 3 - MID-DOOR
LEVEL 2 - OCCUPANT H-POINT
LEVEL 1 - AXLE CENTERLINE HEIGHT OR SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION.

Measurements Along the Vertical 750 mm Line Shown Above:

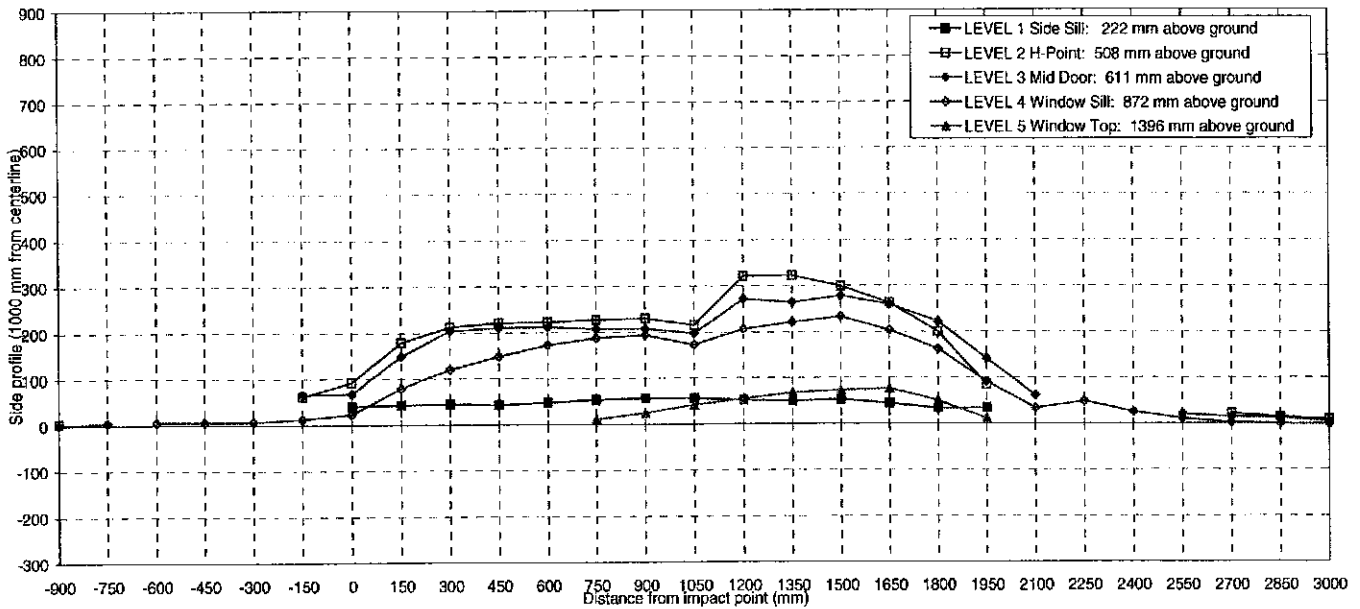
Level 5 @ Window Top	=	<u>1396</u>	millimeters
Level 4 @ Window Sill	=	<u>872</u>	millimeters
Level 3 @ Mid Door	=	<u>611</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>508</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>222</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

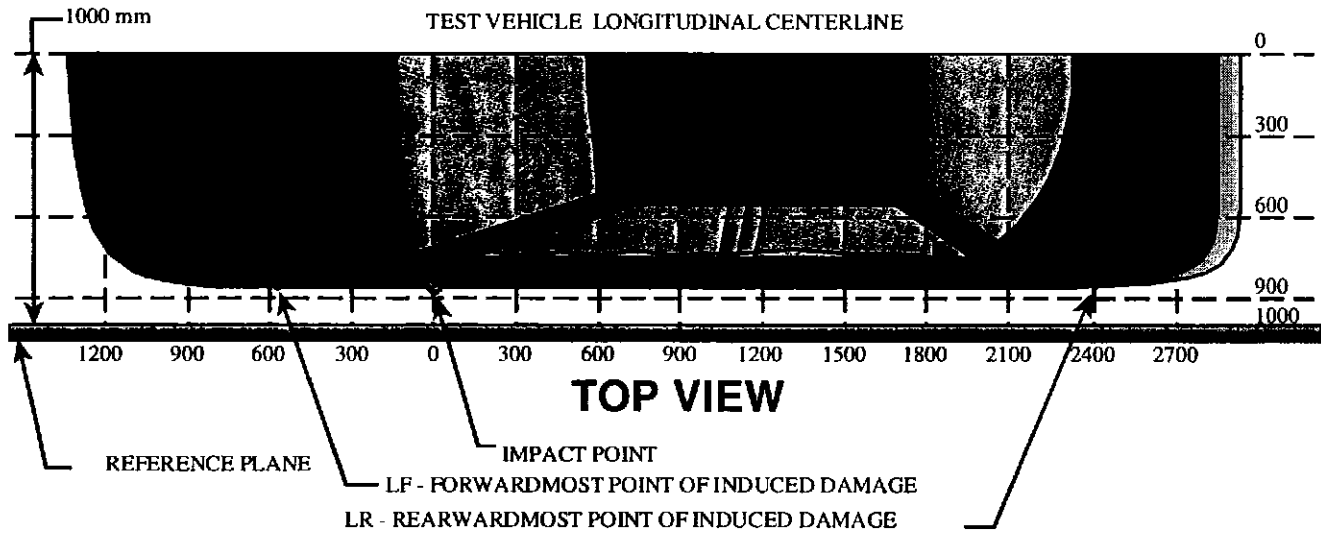
		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																												
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150		150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000	
LEVEL 1 SIDE SILL	222	PRE	--	--	--	--	--	--		151	149	150	150	148	147	149	152	153	156	164	166	155	--	--	--	--	--	--	--	--
		POST	--	--	--	--	--	--		194	194	193	198	201	203	205	204	203	209	208	199	189	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A		43	45	43	48	53	56	56	52	50	53	44	33	34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEVEL 2 H POINT	508	PRE	126	--	--	--	--	93		90	89	86	87	88	87	87	89	92	92	97	105	104	--	--	--	--	--	121	148	166
		POST	129	--	--	--	--	154		268	301	307	310	315	316	302	410	414	391	360	305	188	--	--	--	--	--	142	162	174
		CRUSH	3	N/A	N/A	N/A	N/A	61		178	212	221	223	227	229	215	321	322	299	263	200	84	N/A	N/A	N/A	N/A	N/A	21	14	8
LEVEL 3 MID DOOR	611	PRE	140	103	--	--	--	85		89	86	85	83	83	84	84	85	86	90	92	97	105	90	--	--	102	130	146	166	
		POST	140	108	--	--	--	150		237	290	296	295	290	291	281	356	350	368	351	319	246	151	--	--	122	144	158	170	
		CRUSH	0	5	N/A	N/A	N/A	65		148	204	211	212	207	207	197	271	264	278	259	222	141	61	N/A	N/A	20	14	12	4	
LEVEL 4 WINDOW SILL	872	PRE	--	--	207	175	157	147		138	135	133	131	132	130	131	130	130	132	131	133	141	149	150	158	170	186	201	220	
		POST	--	--	213	181	164	159		217	255	281	304	319	323	303	336	351	365	334	295	232	182	198	183	180	187	200	218	
		CRUSH	N/A	N/A	6	6	7	12		79	120	148	173	187	193	172	206	221	233	203	162	91	33	48	25	10	1	-1	-2	
LEVEL 5 WINDOW TOP	1396	PRE	--	--	--	--	--	--		--	--	--	--	489	386	378	374	378	380	387	408	546	--	--	--	--	--	--	--	
		POST	--	--	--	--	--	--		--	--	--	--	500	410	419	429	446	453	464	458	557	--	--	--	--	--	--	--	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11	24	41	55	68	73	77	50	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (—).
Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

NOTE: All dimensions are in millimeters with tolerance of ± 3 mm.

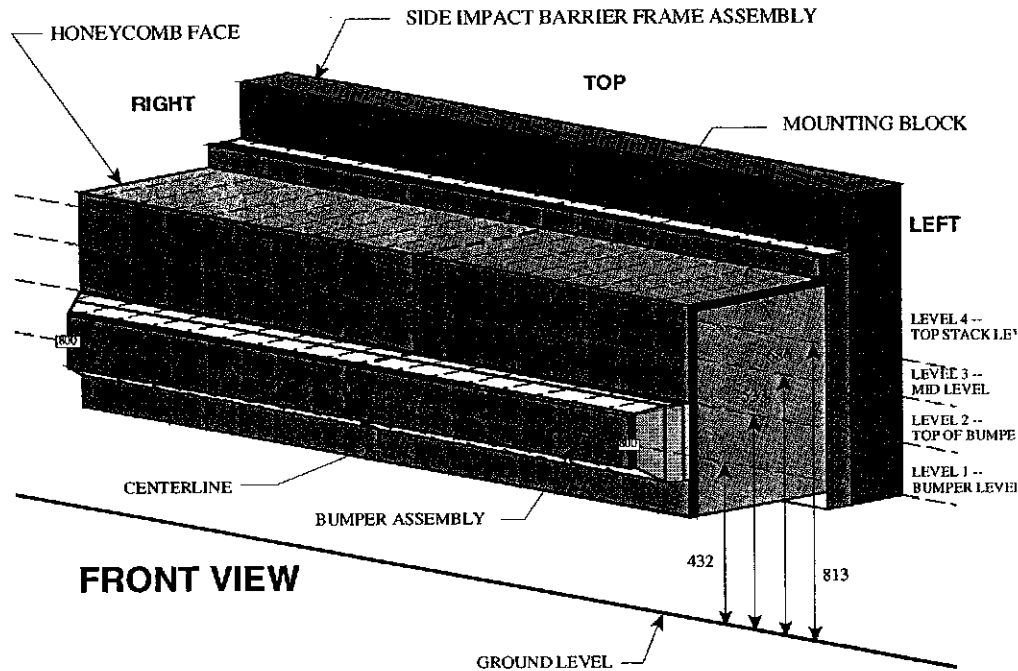
DPD MEASUREMENTS (mm)		POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1 (LR)	2850	162	148	14
2	2220	195	150	45
3	1590	372	95	277
4	960	310	87	223
5	330	302	88	214
6 (LF)	-300	164	157	7

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



NOTE: Dimensions are shown in millimeters, mm

NOTE: All dimensions are in millimeters with a tolerance of ± 3 mm

			DISTANCE RIGHT OF CENTER (mm)										DISTANCE LEFT OF CENTER (mm)									
LEVEL	HEIGHT AT CL (mm)*		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800			
LEVEL 4 TOP STACK	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619			
		POST	686	651	632	631	642	662	698	711	687	656	644	652	659	674	695	725	750			
		CRUSH	67	32	13	12	23	43	79	92	68	37	25	33	40	55	76	106	131			
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619			
		POST	684	659	649	648	653	661	691	680	658	644	637	636	638	647	660	674	708			
		CRUSH	65	40	30	29	34	42	72	61	39	25	18	17	19	28	41	55	89			
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619			
		POST	698	684	681	673	675	674	684	681	672	672	673	671	673	679	679	688	703			
		CRUSH	79	65	62	54	56	55	65	62	58	53	54	52	54	60	60	69	84			
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	518	519	535			
		POST	707	680	662	654	658	665	656	647	642	637	631	630	630	630	633	643	662			
		CRUSH	172	161	144	136	140	147	138	129	124	119	113	112	112	112	115	124	127			

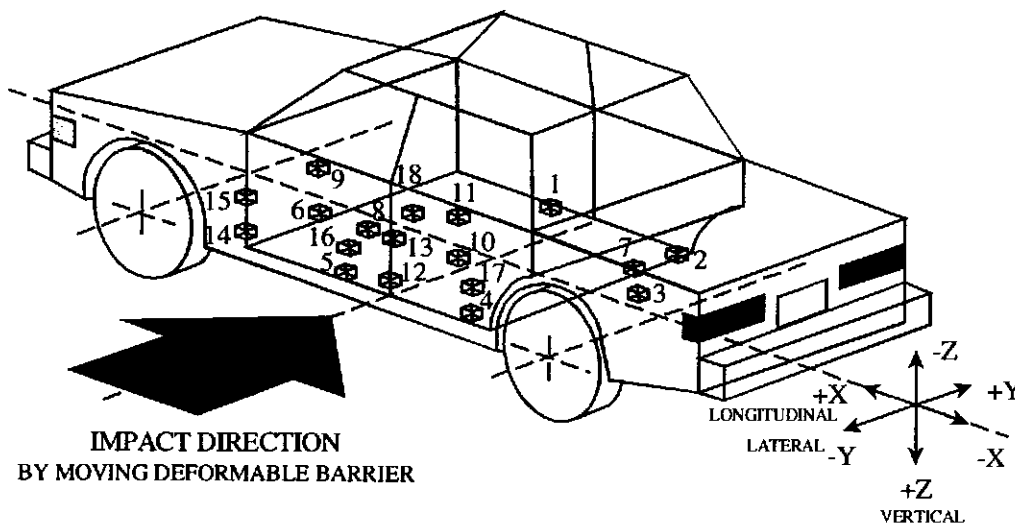
*Heights measured above ground level.

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



- 1-Right Side Sill @ Front Seat
- 2-Right Side Sill @ Rear Seat
- 3-Rear Floorpan Above Axle
- 4-Left Side Sill @ Rear Seat
- 5-Left Side Sill @ Front Seat
- 6-Left Front Door on Centerline
- 7-Right Rear Occupant Compartment
- 8-Midrear of Left Front Door
- 9-Left Front Door Upper Centerline

- 10-Midrear of Left Rear Door
- 11-Left Rear Door Upper Centerline
- 12-Left Lower B-Pillar
- 13-Left Middle B-Pillar
- 14-Left Lower A-Pillar
- 15-Left Middle A-Pillar
- 16-Front Seat Track
- 17-Rear Seat Track
- 18-Vehicle CG

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

NHTSA No. C55108

Vehicle: 2005 Toyota Avalon 4-Door Sedan

Accel. No.	Location	Coordinates (mm)±3 mm			Long. (x)		Lat. (y)		Vert. (z)		Resultant	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
1	Right Side Sill at Front Seat	3299	708	-249	pos.	4.2	59.8	†	5.9	61.5	8.9	10.7
					neg.	-4.4	11.3	†	-8.0	10.0	-	-
2	Right Side Sill at Rear Seat	2261	694	-224	pos.	4.9	60.1	23.4	3.1	65.7	24.5	6.8
					neg.	-4.5	11.1	-2.0	-10.8	16.0	-	-
3	Rear Floorpan Above Axle	1170	24	-454	pos.	2.4	117.4	23.3	9.6	31.7	24.8	30.8
					neg.	-8.0	21.6	-3.0	-6.7	124.2	-	-
4	Left Side Sill at Rear Seat	2287	-691	-237	pos.	-	-	61.0	-	-	-	-
					neg.	-	-	-39.9	-	-	-	-
5	Left Side Sill at Front Seat	3338	-691	-240	pos.	-	-	77.5	-	-	-	-
					neg.	-	-	-32.1	-	-	-	-
6**	Left Front Door on Centerline	-	-	-	pos.	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-
7	Right Rear Occupant Compartment	2253	449	-162	pos.	-	-	22.5	-	-	-	-
					neg.	-	-	-3.5	-	-	-	-
8**	Midrear of Left Front Door	-	-	-	pos.	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-
9**	Left Front Door Upper Centerline	-	-	-	pos.	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-
10**	Midrear of Left Rear Door	-	-	-	Pos.	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-
11**	Left Rear Door Upper Centerline	-	-	-	pos.	-	-	-	-	-	-	-
					neg.	-	-	-	-	-	-	-

*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Down)

** Accelerometer was not requested by COTR.

† Transducer Failed

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108

Accel. No.	Location	Coordinates (mm)±3 mm			Long. (x)		Lat. (y)		Vert. (z)		Resultant	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
12	Left Lower B-Pillar	2361	-698	-335	pos.	-	207.2	10.2	-	-	-	-
					neg.	-	-244.0	15.1	-	-	-	-
13	Left Middle B-Pillar	2349	-705	-879	pos.	-	182.7	4.4	-	-	-	-
					neg.	-	-77.1	9.8	-	-	-	-
14	Left Lower A-Pillar	3525	-713	-301	pos.	-	84.2	9.8	-	-	-	-
					neg.	-	-37.5	14.8	-	-	-	-
15	Left Middle A-Pillar	3488	-708	-934	pos.	-	36.9	22.8	-	-	-	-
					neg.	-	-16.0	28.3	-	-	-	-
16	Front Seat Track	2607	-554	-266	pos.	-	53.6	13.0	-	-	-	-
					neg.	-	-14.0	23.4	-	-	-	-
17	Rear Seat Track	1180	-525	-476	pos.	-	22.9	29.6	-	-	-	-
					neg.	-	-2.0	103.9	-	-	-	-
18	Vehicle CG	3094	140	-534	pos.	14.9	53.0	28.0	15.1	39.3	55.1	27.9
					neg.	-17.0	-41.5	34.3	-17.2	31.7	-	-

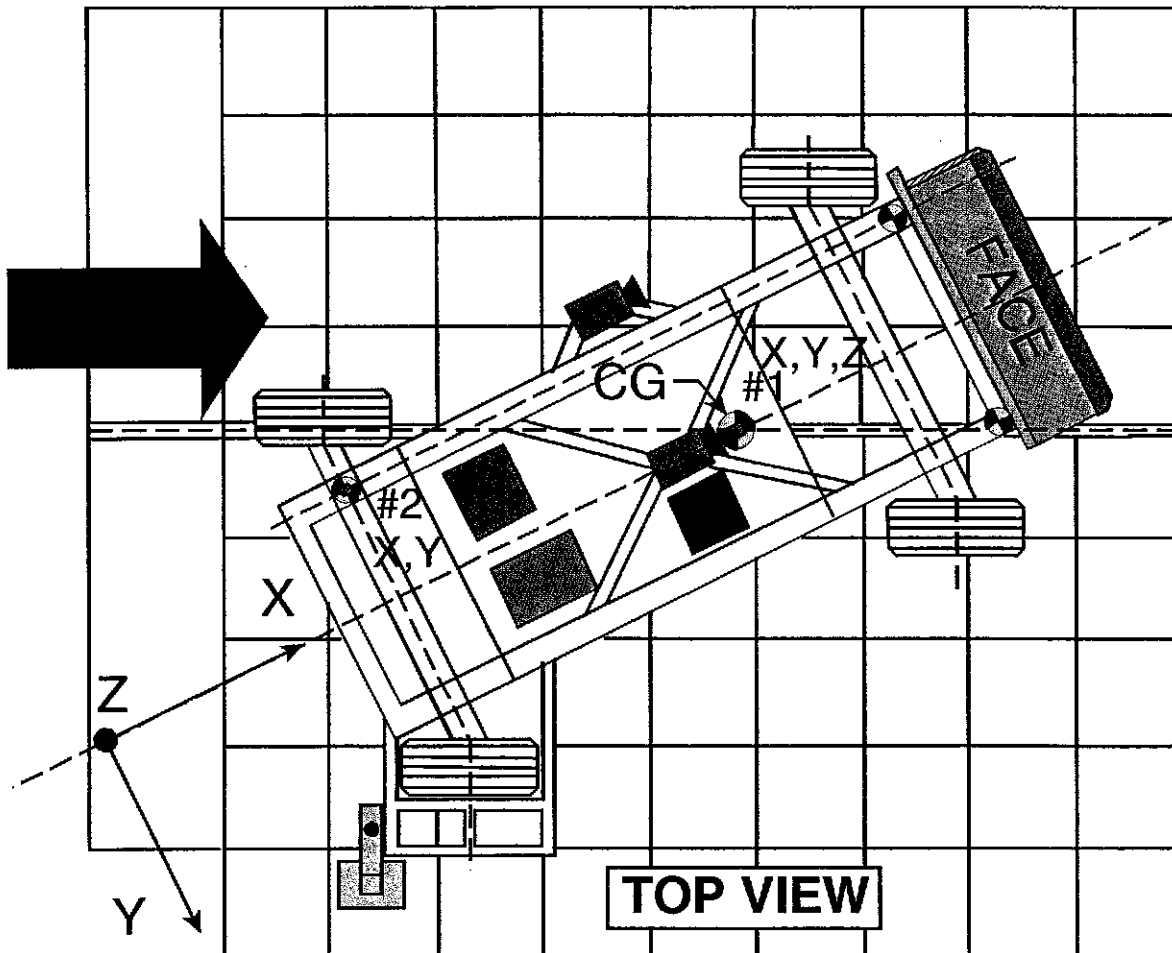
*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Down)

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



Accel. No.	Location	Coordinates (millimeters)			Pos. Direct.		Neg. Direct.	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity							
	Longitudinal... X	1859	0	-330	1.1	137.3	-20.5	39.2
	Lateral..... Y				1.6	67.0	-7.2	20.9
	Vertical..... Z				10.7	28.2	-17.1	22.6
	Resultant..... R				22.9	22.2	-	-
2	Rear Frame Member							
	Longitudinal... X	386	-660	-660	2.0	161.7	-22.8	33.6
	Lateral..... Y				3.4	32.0	-2.5	166.3

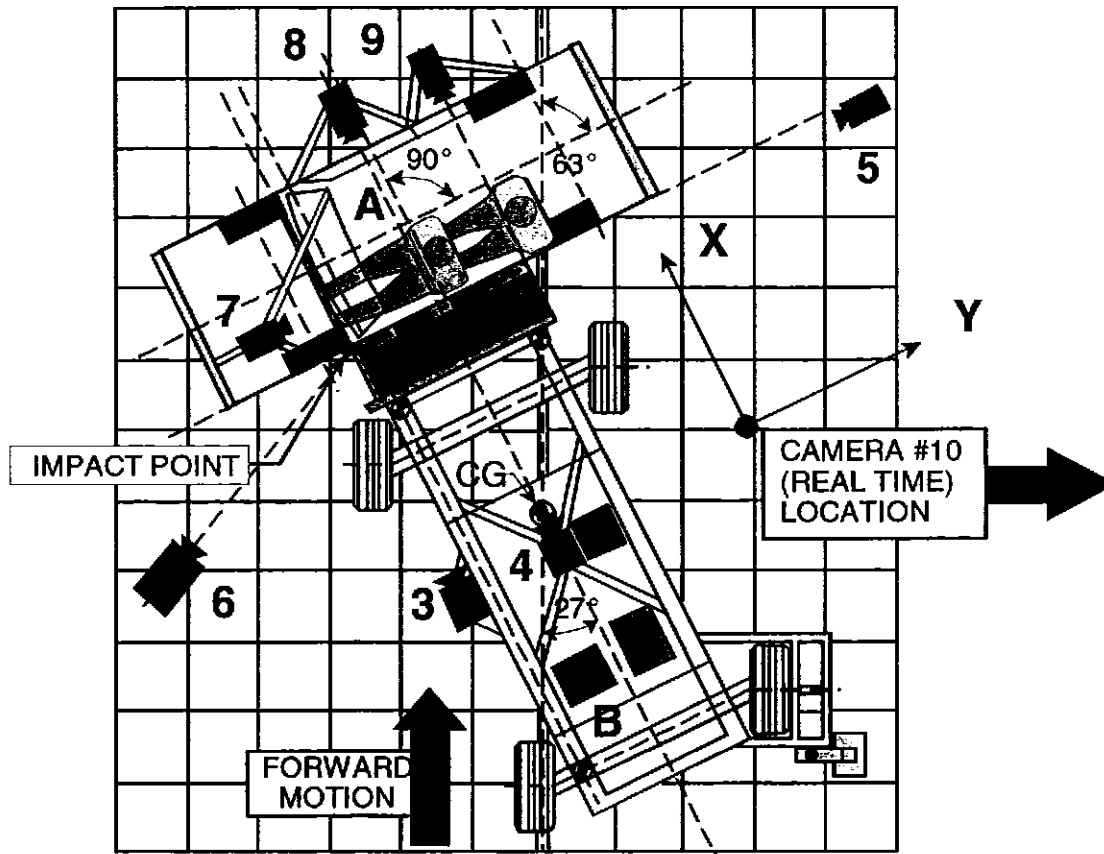
*Reference: X = Rear Bumper (+ Forward)
Y = Vehicle Centerline (+ To Right)
Z = Ground Level (+ Down)
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2005 Toyota Avalon 4-Door Sedan

NHTSA No. C55108



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	72	812	-4880	-90	8	1000
2	Overhead closeup view of impact plane	195	855	-4880	-90	12.5	1000
3	MDB onboard closeup view of impact point	-1470	0	-847	0	13	1000
4	MDB onboard view of driver dummy	-1140	838	-1586	-17	7.5	1000
5	Right side ground level overall view	-210	9460	-1143	-4	25	1000
6	Left side ground level overall view	-2065	-1785	-985	-5	13	†
7	Test vehicle onboard driver front view	536	-639	-1274	-10	25	†
8	Test vehicle onboard driver side view	1767	755	-1065	-9	12.5	†
9	Test vehicle onboard passenger side view	1755	1668	-1080	-8	12.5	†
10	Real time film coverage of test	-	-	-	-	-	30

* Reference (from point of impact); all measurements accurate to within ± 6 mm.

X = (Impact Point) + Forward

Y = (Impact Point) + To Right

Z = (Ground Level) + Down

† High speed video view not available, view was lost during the event due to a damaged power connector.

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

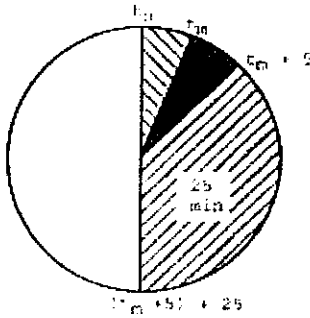
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: C55108 TEST DATE: April 19, 2005
 Vehicle Mfr./Make/Model: Toyota Motor Manufacturing 2005 Toyota Avalon 4-Door Sedan

TEST VEHICLE IMPACT TYPE:

- Frontal (48.28 kph)
- Oblique (48.28 kph) with - ° barrier face first
 contacting the - side
 (driver/passenger)
- Rear Moving Barrier (48.28 kph)
- Lateral Moving Barrier (32.19 kph)
- X Side Impact Moving Deformable Barrier (62.0 kph)
 contacting the driver side side
 (driver/passenger)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For five minute period after vehicle motion ceases
3. For next 25 minutes

ACTUAL	MAX ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min.

SOLVENT SPILLAGE DETAILS:

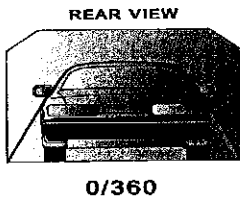
None

DATA SHEET 17

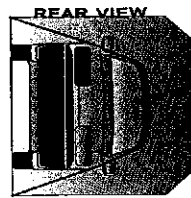
ROLLOVER DATA

Vehicle: 2005 Toyota Avalon 4-Door Sedan

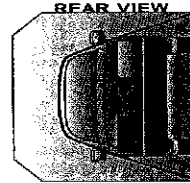
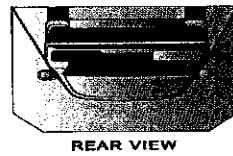
NHTSA No.: C55108



90



180



270

I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	4	seconds	5	minutes	6	minutes	4	seconds	7	minutes
90° - 180°	1	minutes	5	seconds	5	minutes	6	minutes	5	seconds	7	minutes
180°-270°	1	minutes	2	seconds	5	minutes	6	minutes	2	seconds	7	minutes
270°-360°	1	minutes	5	seconds	5	minutes	6	minutes	5	seconds	7	minutes

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180°-270°	None
270°-360°	None

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

<u>Figure</u>	<u>Photograph Title</u>	<u>Page</u>
Figure A- 1	PRE-TEST FRONTAL VIEW OF TEST VEHICLE	A- 3
Figure A- 2	POST-TEST FRONTAL VIEW OF TEST VEHICLE	A- 4
Figure A- 3	PRE-TEST REAR VIEW OF TEST VEHICLE	A- 5
Figure A- 4	POST-TEST REAR VIEW OF TEST VEHICLE	A- 6
Figure A- 5	PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE	A- 7
Figure A- 6	POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE	A- 8
Figure A- 7	PRE-TEST LEFT FRONT VIEW OF TEST VEHICLE	A- 9
Figure A- 8	POST-TEST LEFT FRONT VIEW OF TEST VEHICLE	A- 10
Figure A- 9	PRE-TEST LEFT REAR VIEW OF TEST VEHICLE	A- 11
Figure A- 10	POST-TEST LEFT REAR VIEW OF TEST VEHICLE	A- 12
Figure A- 11	PRE-TEST RIGHT FRONT VIEW OF TEST VEHICLE	A- 13
Figure A- 12	POST-TEST RIGHT FRONT VIEW OF TEST VEHICLE	A- 14
Figure A- 13	PRE-TEST RIGHT REAR VIEW OF TEST VEHICLE	A- 15
Figure A- 14	POST-TEST RIGHT REAR VIEW OF TEST VEHICLE	A- 16
Figure A- 15	PRE-TEST FRONTAL VIEW OF IMPACTOR FACE	A- 17
Figure A- 16	POST-TEST FRONTAL VIEW OF IMPACTOR FACE	A- 18
Figure A- 17	PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE	A- 19
Figure A- 18	POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE	A- 20
Figure A- 19	PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE	A- 21
Figure A- 20	POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE	A- 22
Figure A- 21	PRE-TEST TOP VIEW OF IMPACTOR FACE	A- 23
Figure A- 22	POST-TEST TOP VIEW OF IMPACTOR FACE	A- 24
Figure A- 23	PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE	A- 25
Figure A- 24	POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE	A- 26
Figure A- 25	PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3	A- 27
Figure A- 26	POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3	A- 28
Figure A- 27	PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID H3	A- 29
Figure A- 28	POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID H3	A- 30
Figure A- 29	PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3	A- 31
Figure A- 30	POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3	A- 32
Figure A- 31	PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3	A- 33
Figure A- 32	POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3	A- 34
Figure A- 33	PRE-TEST INTERIOR OF FRONT DOOR	A- 35
Figure A- 34	POST-TEST INTERIOR OF FRONT DOOR SHOWING SID H3 IMPACT LOCATIONS	A- 36
Figure A- 35	PRE-TEST INTERIOR OF REAR DOOR	A- 37
Figure A- 36	POST-TEST INTERIOR OF REAR DOOR SHOWING SID H3 IMPACT LOCATIONS	A- 38
Figure A- 37	PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION	A- 39
Figure A- 38	PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION	A- 40
Figure A- 39	POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET	A- 41
Figure A- 40	CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL	A- 42
Figure A- 41	CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL	A- 43
Figure A- 42	IMPACT PHOTO	A- 44
Figure A- 43	ROLLOVER 90 DEGREES	A- 45
Figure A- 44	ROLLOVER 180 DEGREES	A- 46
Figure A- 45	ROLLOVER 270 DEGREES	A- 47
Figure A- 46	ROLLOVER 360 DEGREES	A- 48

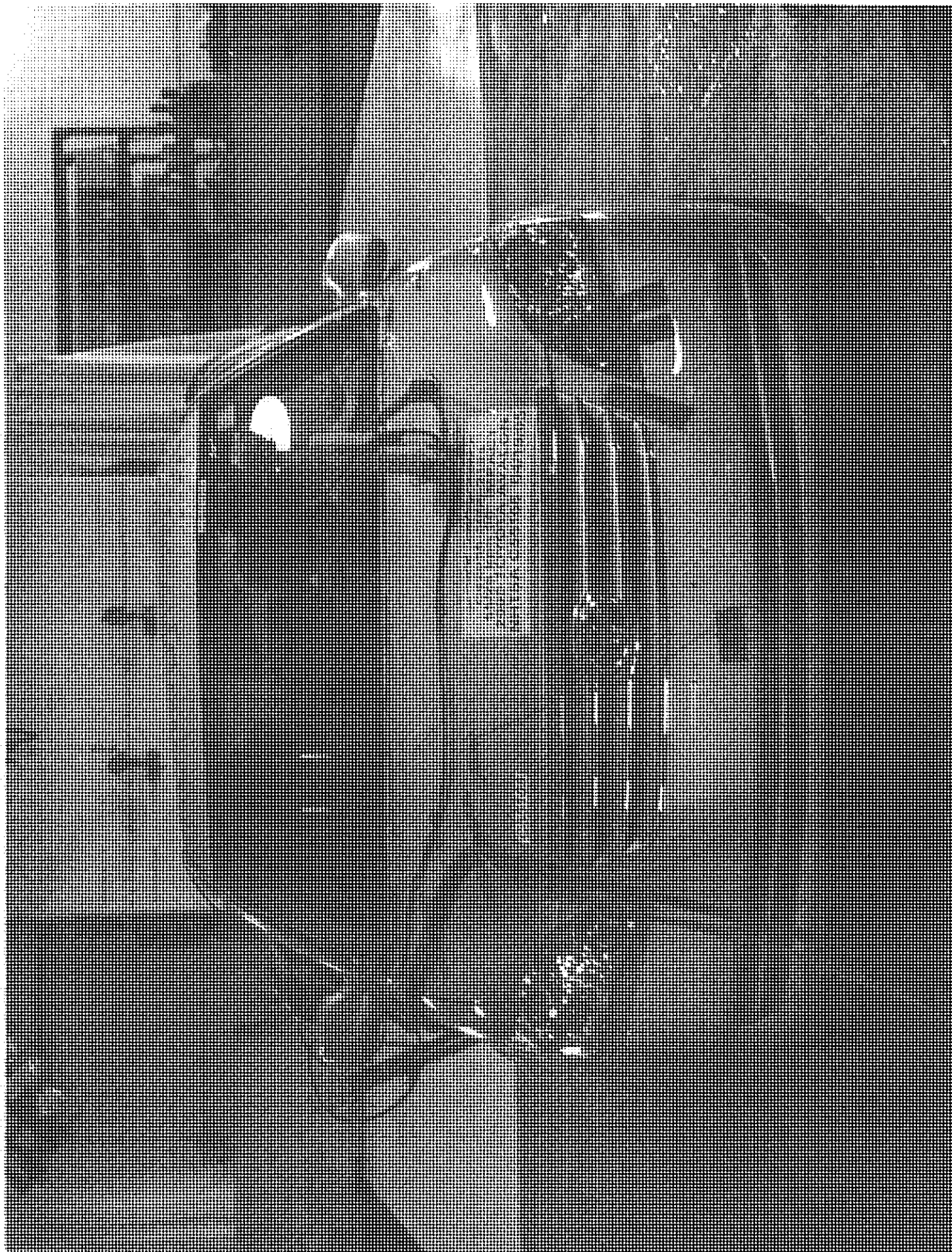


Figure A-2 POST-TEST FRONTAL VIEW OF TEST VEHICLE

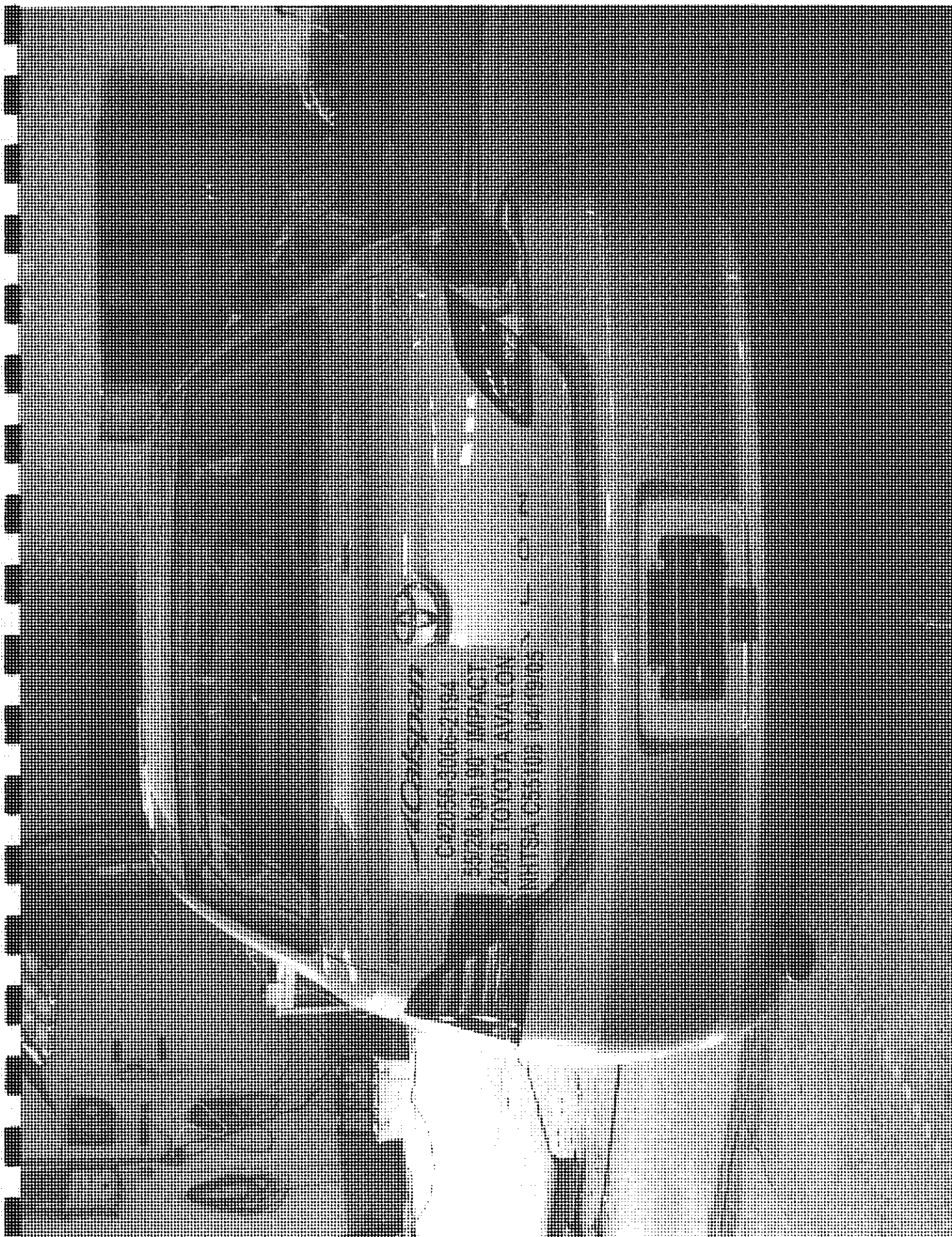


Figure A-3 PRE-TEST REAR VIEW OF TEST VEHICLE

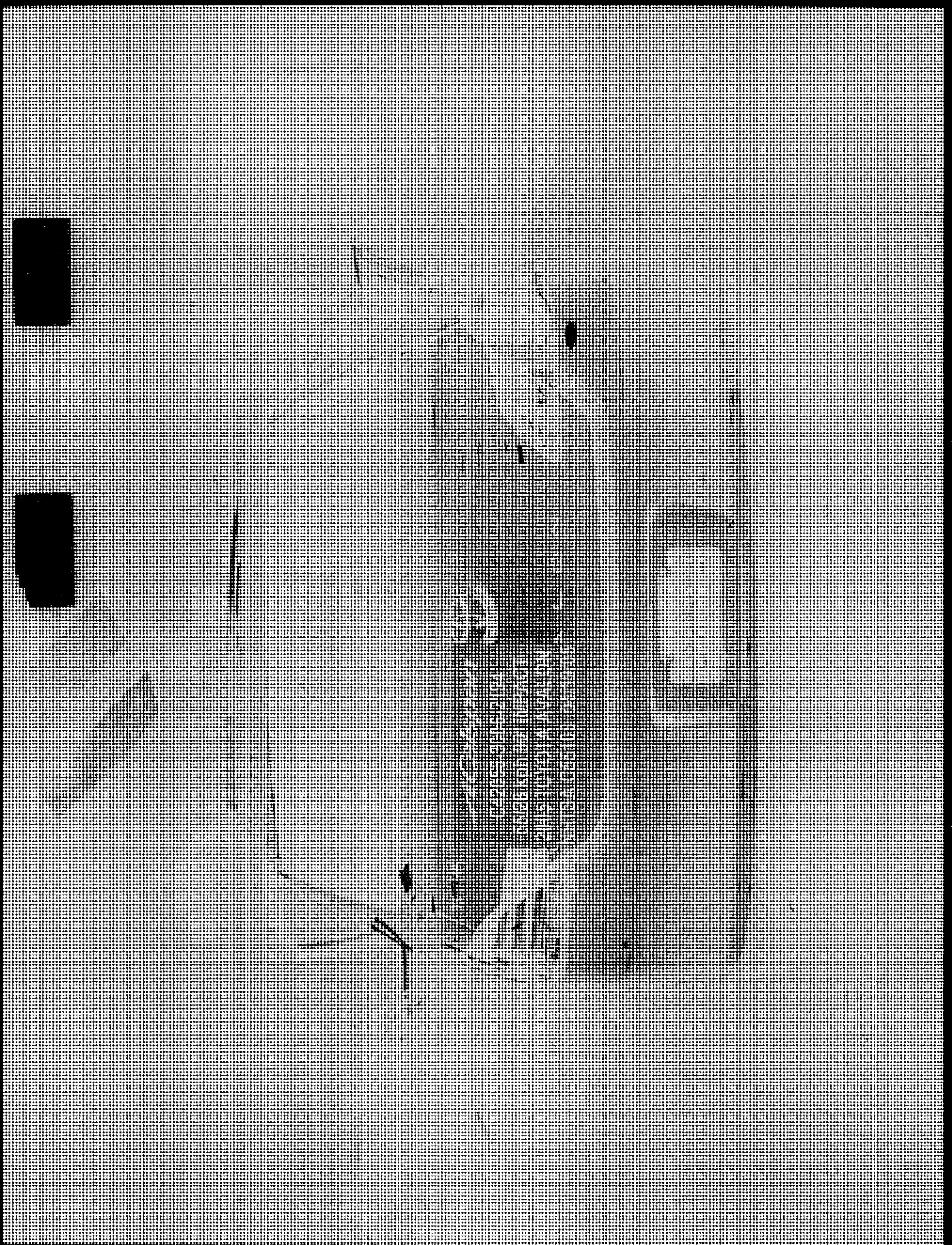


Figure A-4 POST-TEST REAR VIEW OF TEST VEHICLE

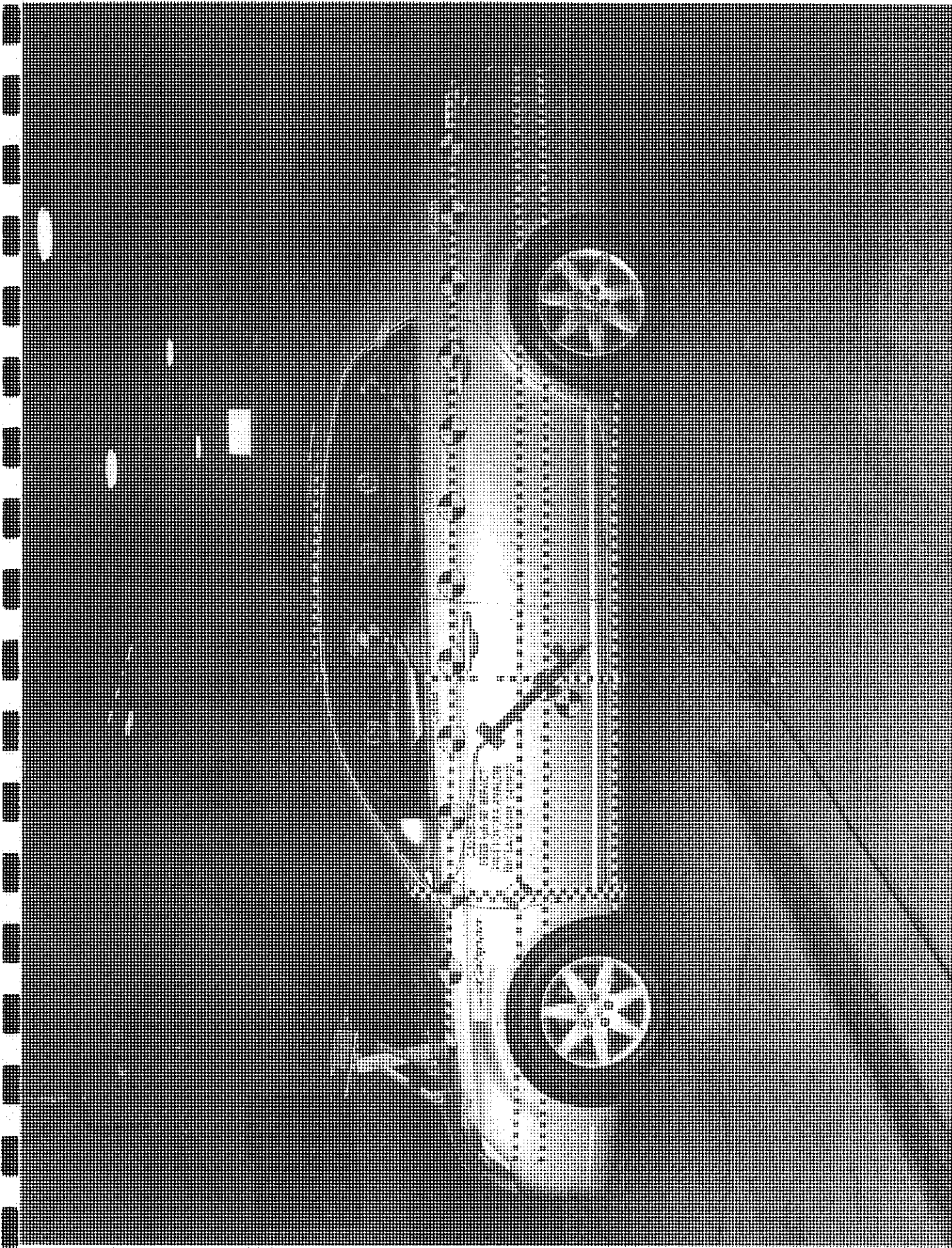


Figure A-5 PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE

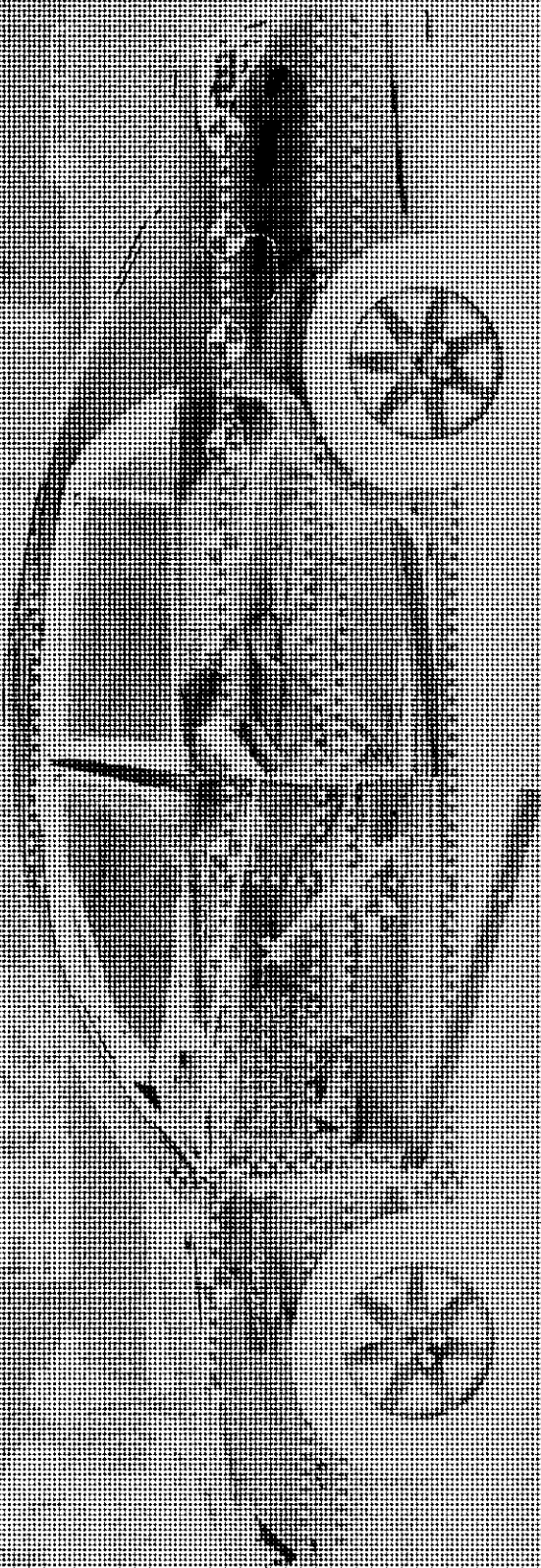


Figure A-6 POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE



Figure A-9 PRE-TEST LEFT FRONT VIEW OF TEST VEHICLE

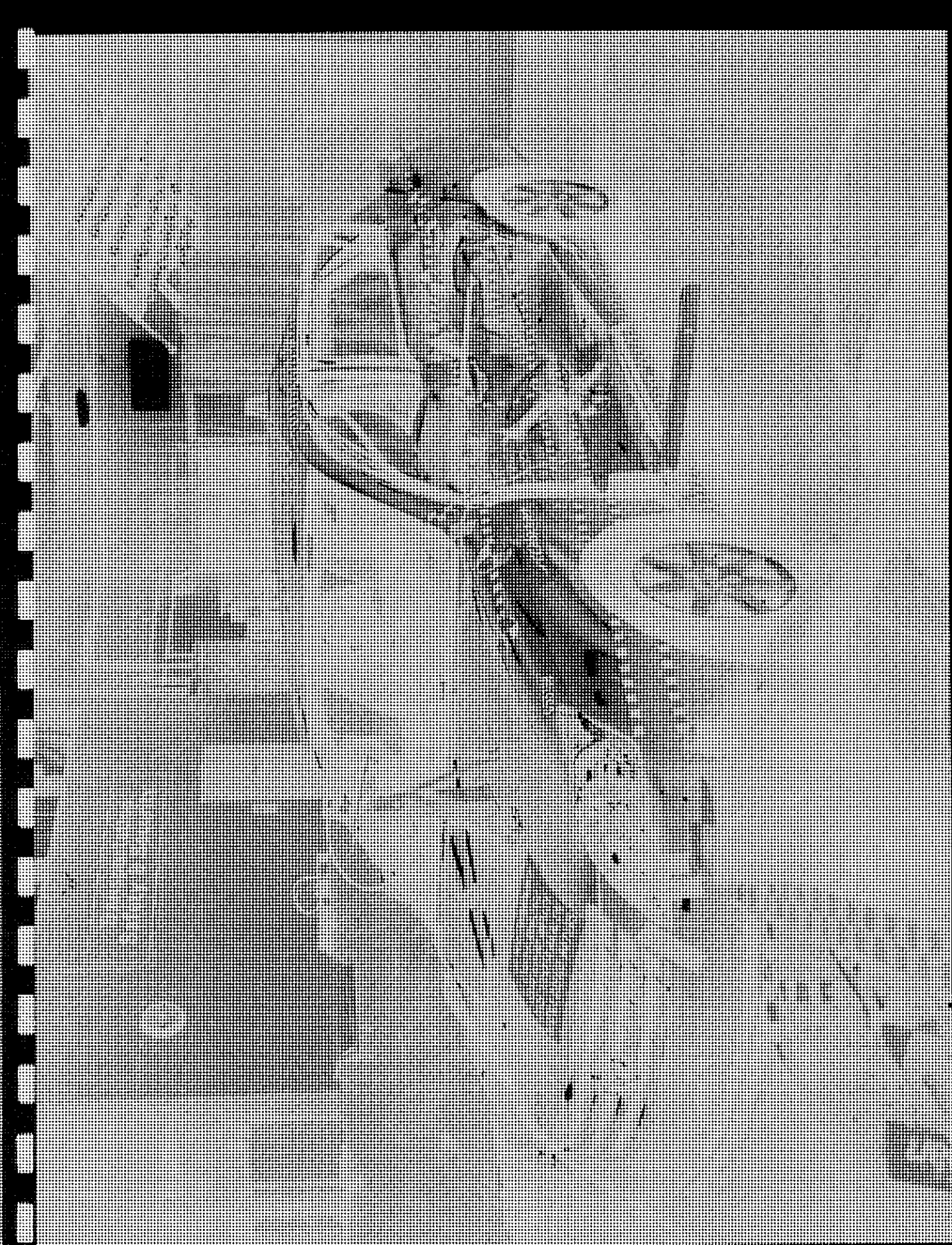


Figure A-8 POST-TEST LEFT FRONT VIEW OF TEST VEHICLE

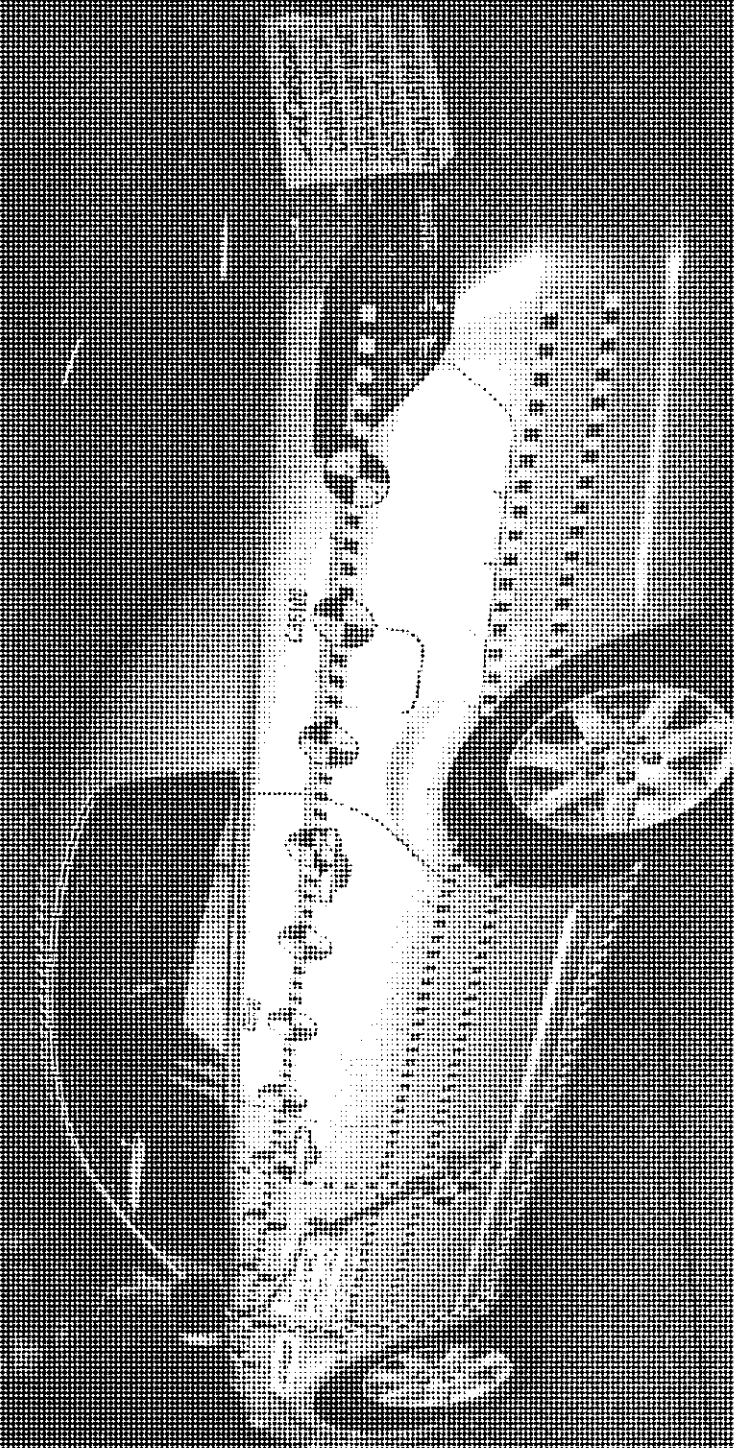


Figure A-9 PRE-TEST LEFT REAR VIEW OF TEST VEHICLE

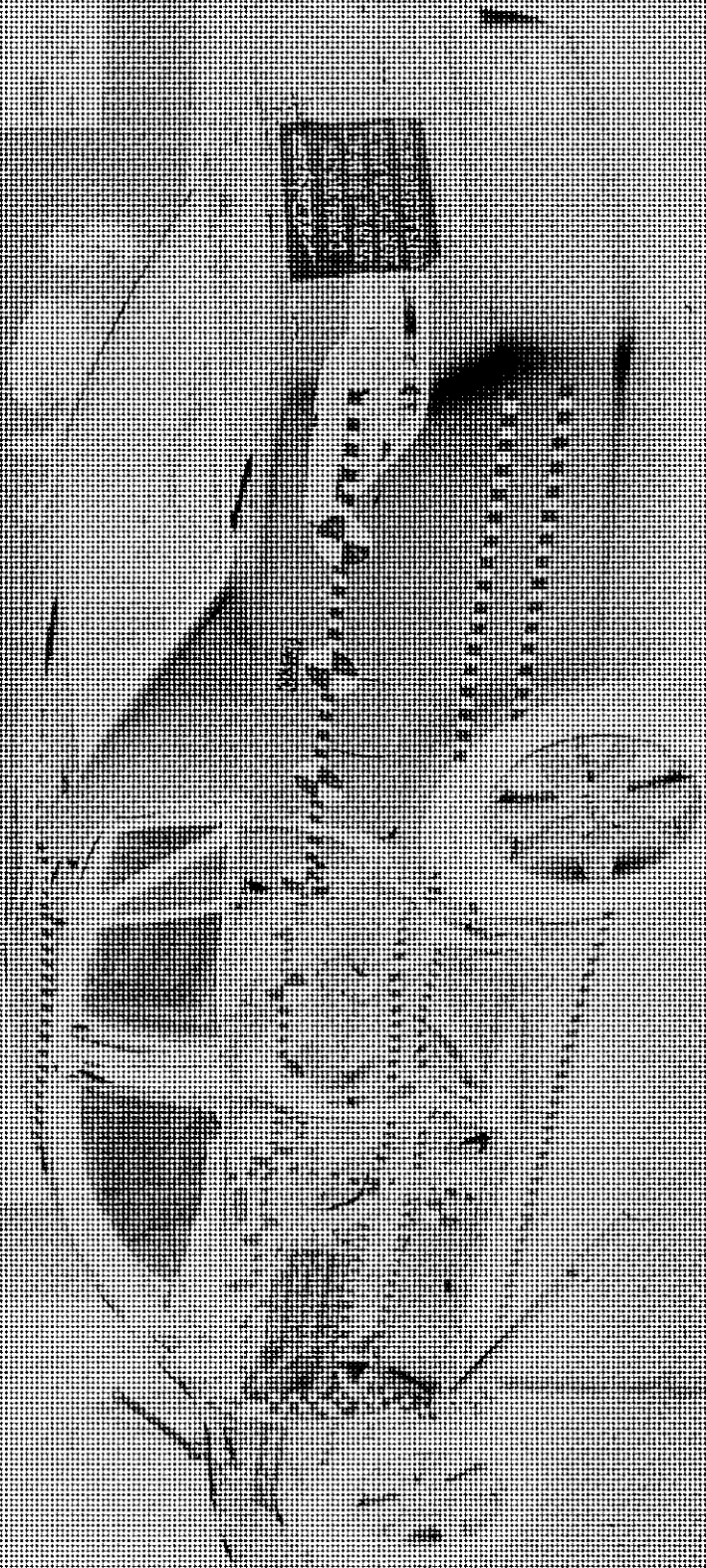


FIGURE A-10 POST-TEST LEFT REAR VIEW OF TEST VEHICLE

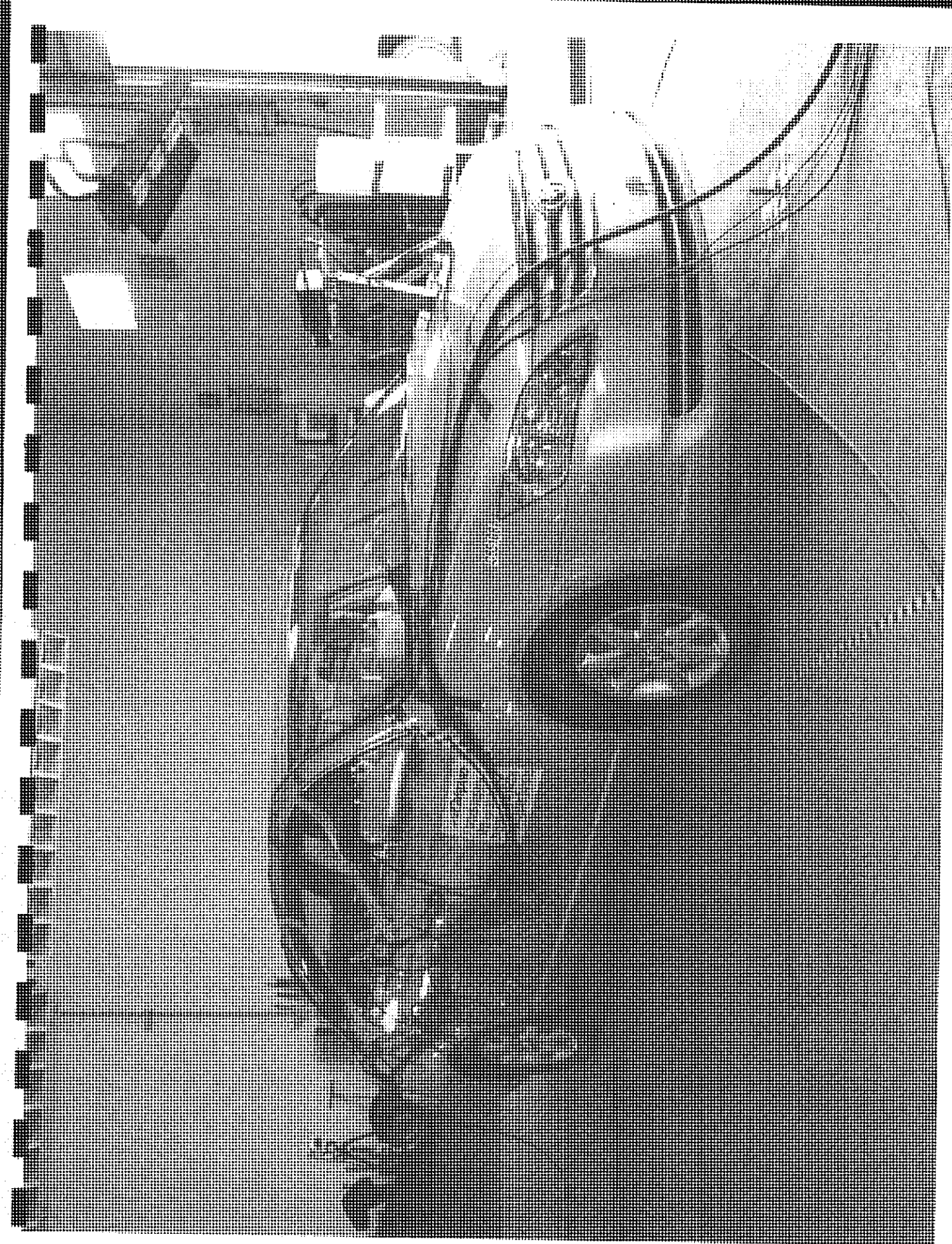


Figure A-11 PRE TEST RIGHT FRONT VIEW OF TEST VEHICLE



Figure A-12 POST-TEST RIGHT FRONT VIEW OF TEST VEHICLE



Figure A-13 PRE-TEST RIGHT REAR VIEW OF TEST VEHICLE

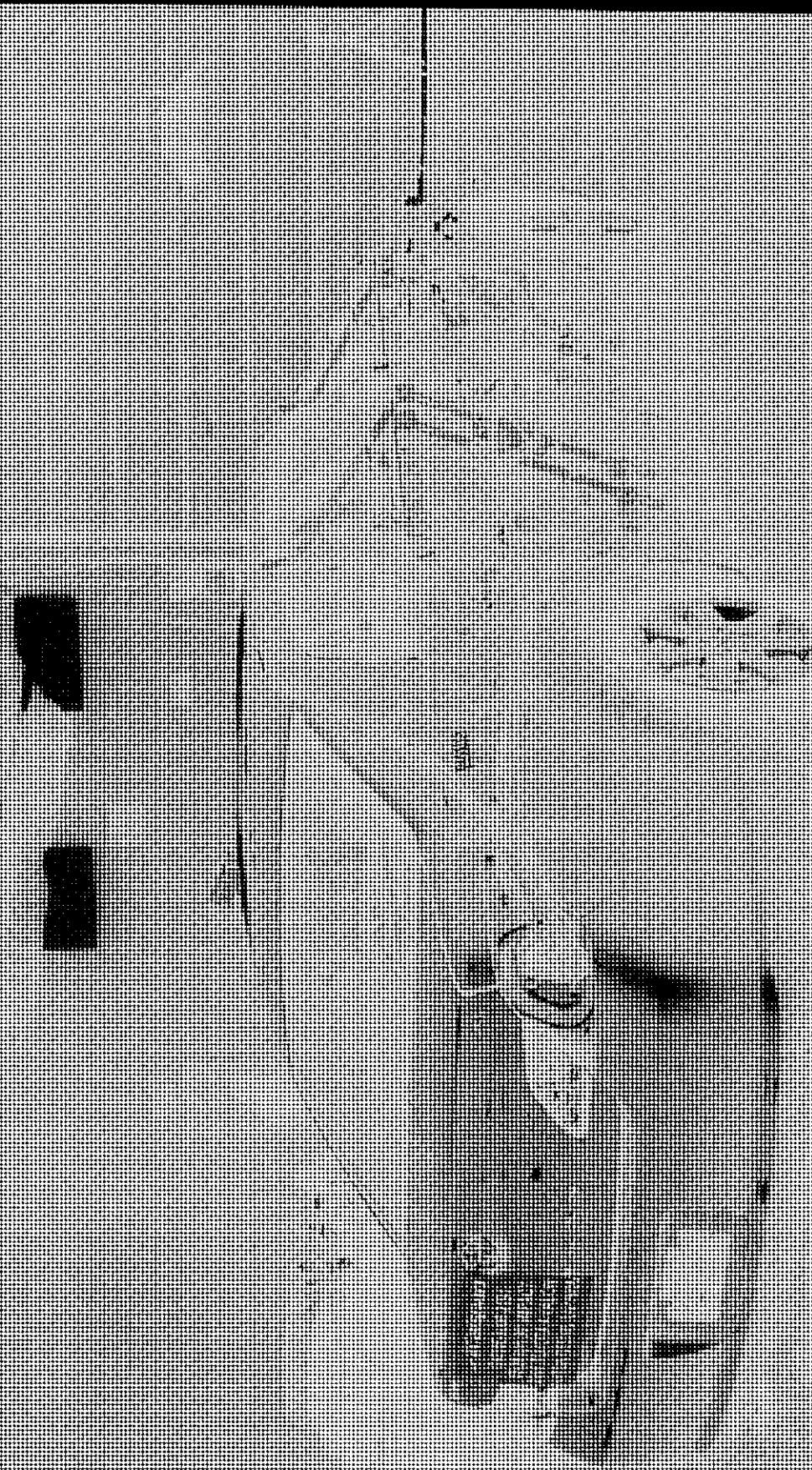


Figure A-14 POST-TEST RIGHT REAR VIEW OF TEST VEHICLE

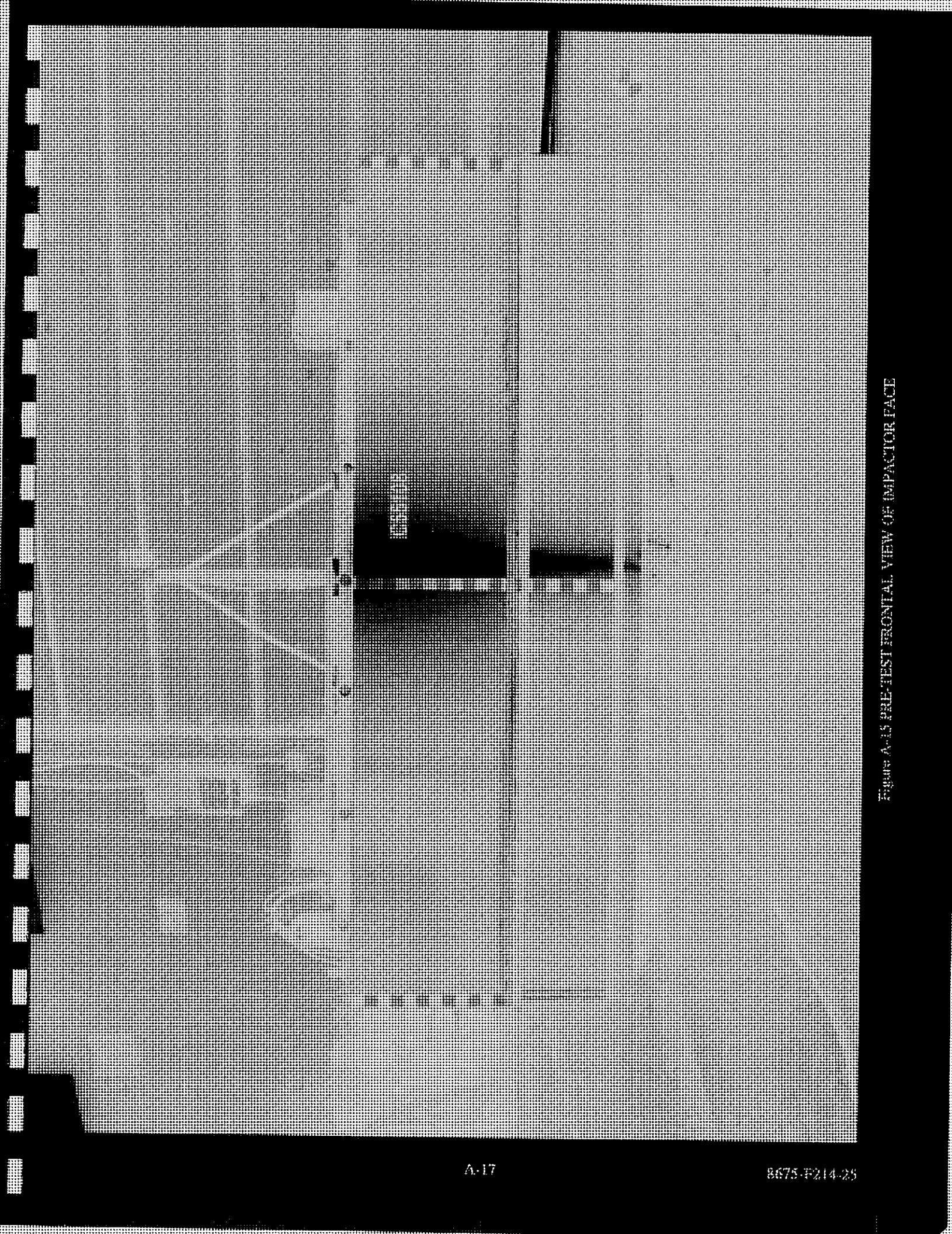


Figure A-15 PRE-TEST FRONTAL VIEW OF IMPACTOR FACE

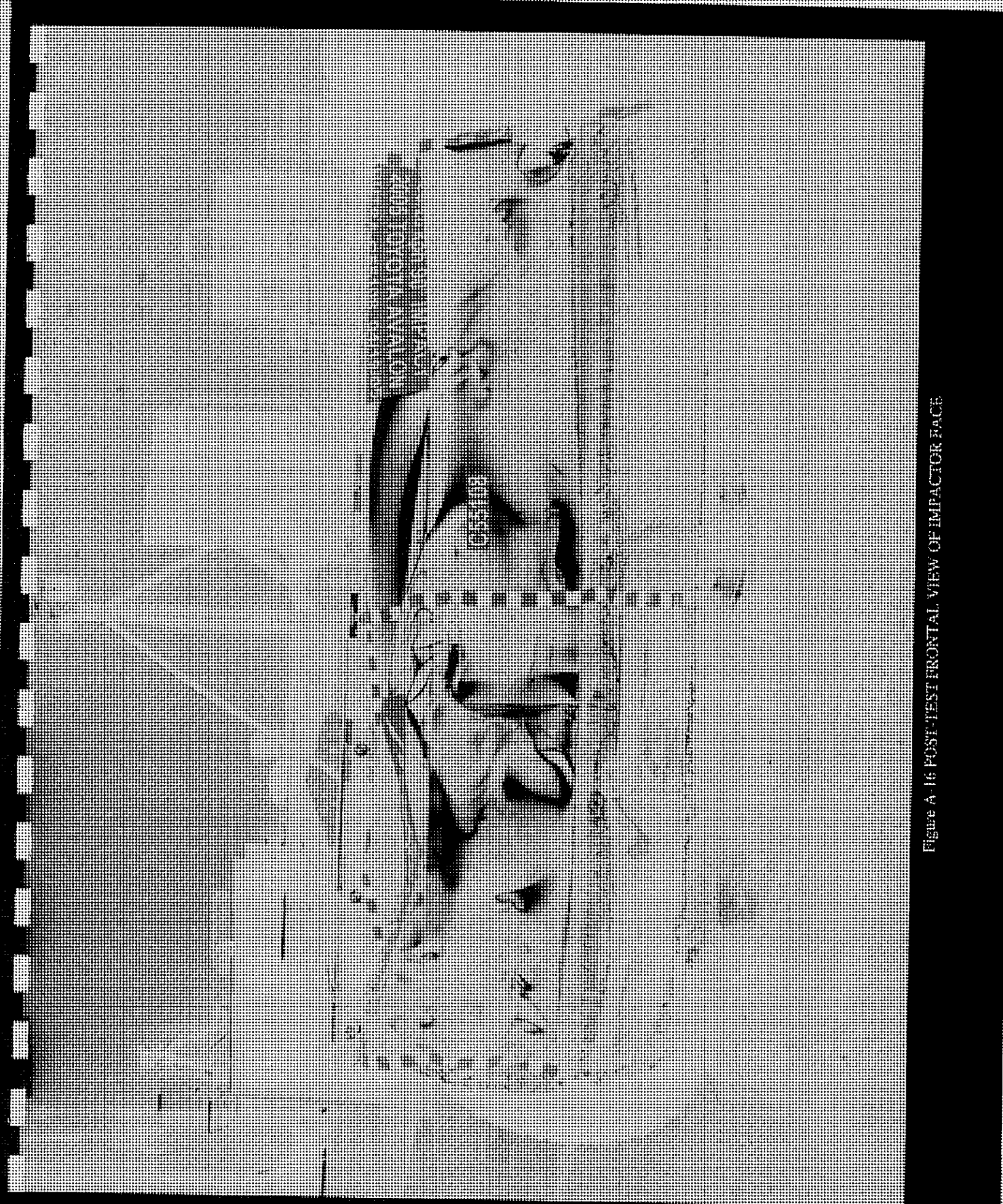


Figure A-16 POST-TEST FRONTAL VIEW OF IMPACTOR FACE

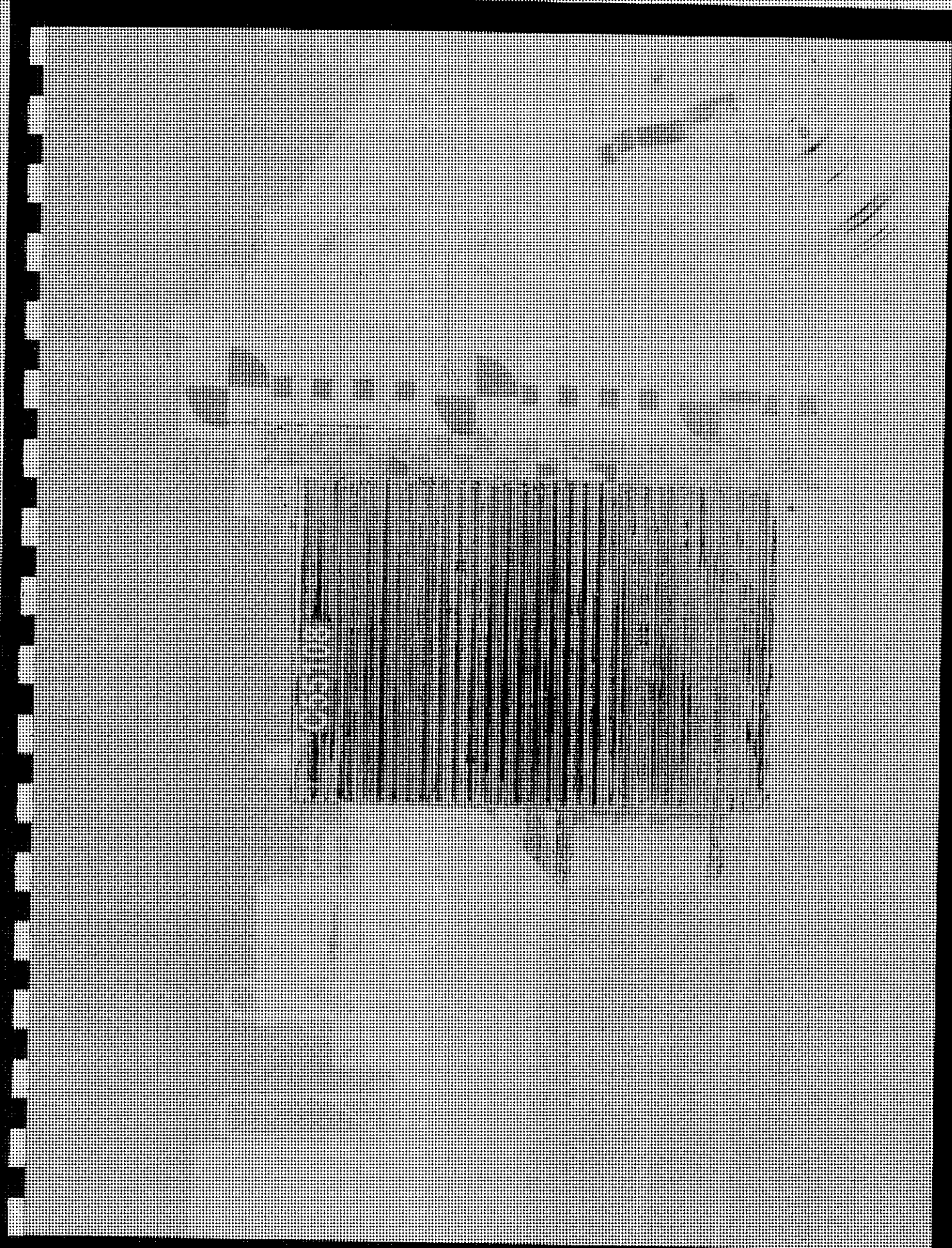


Figure A-17 PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE



Figure A-18 POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE

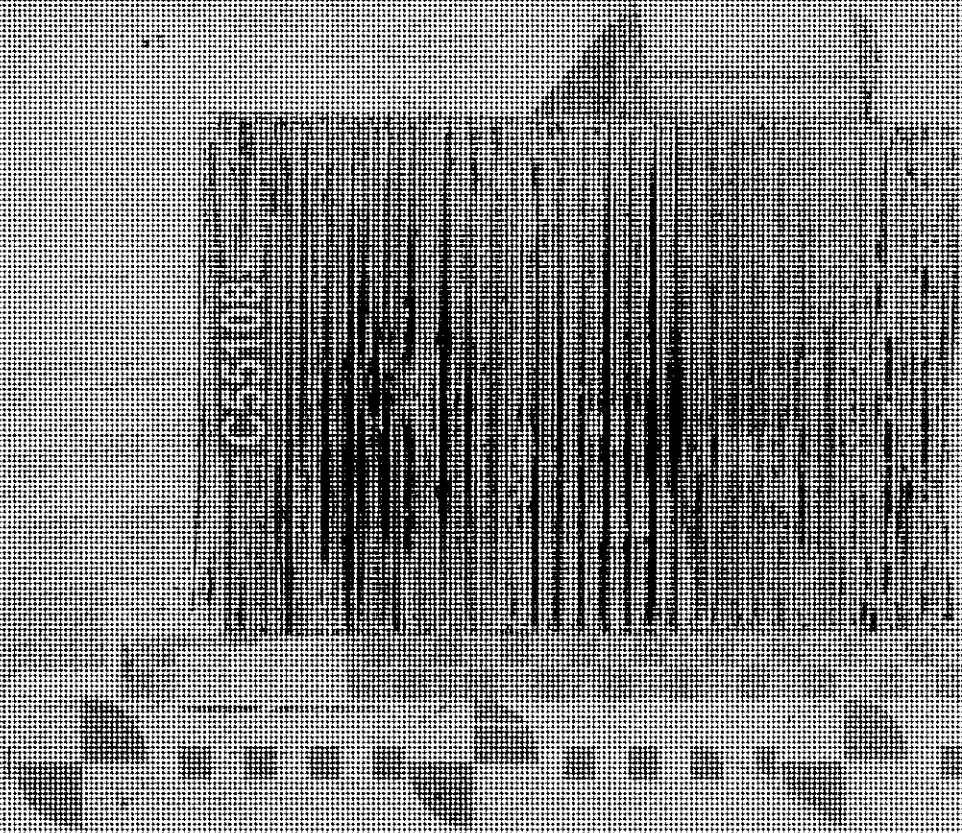


Figure A-19 PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

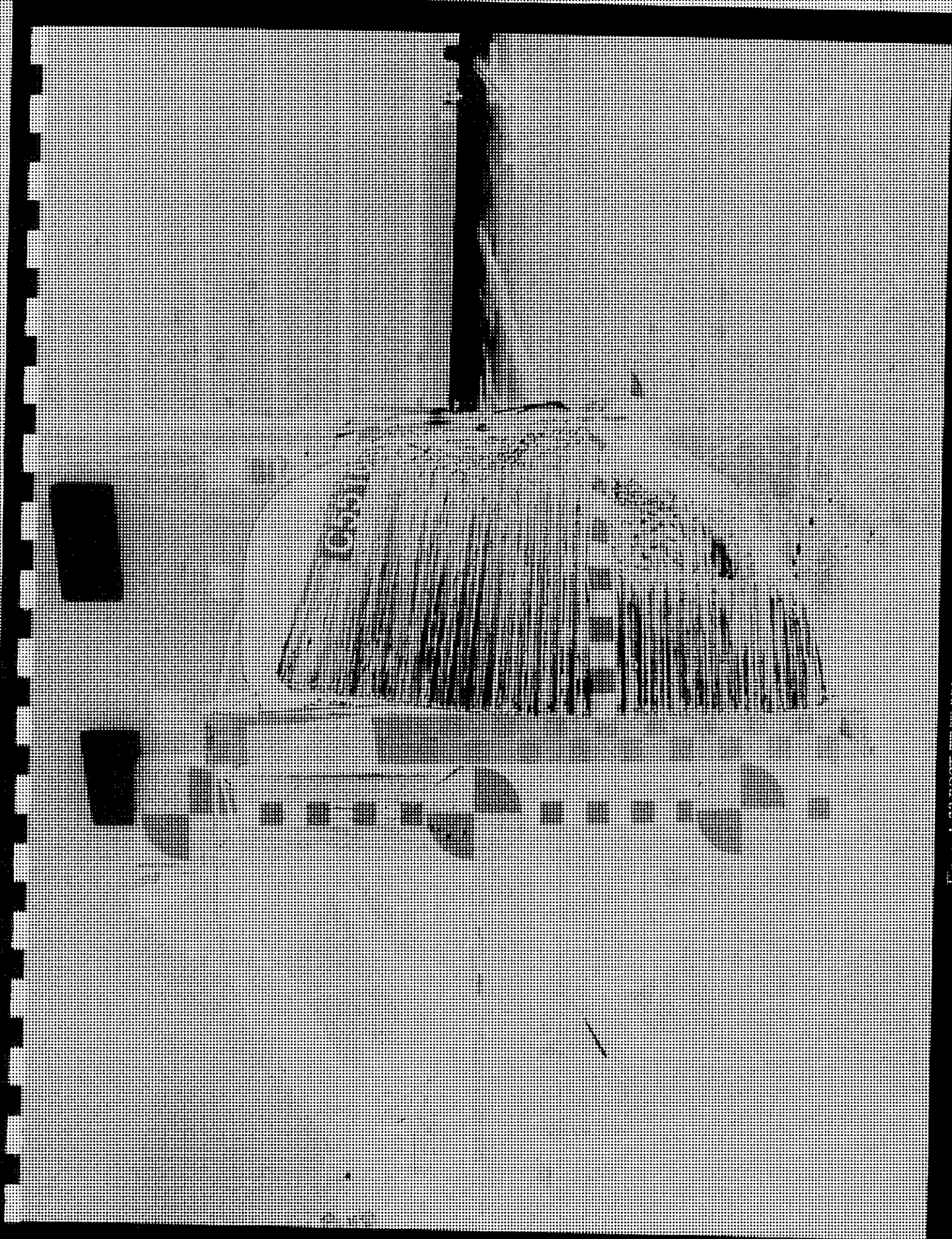


Figure A-20 POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE

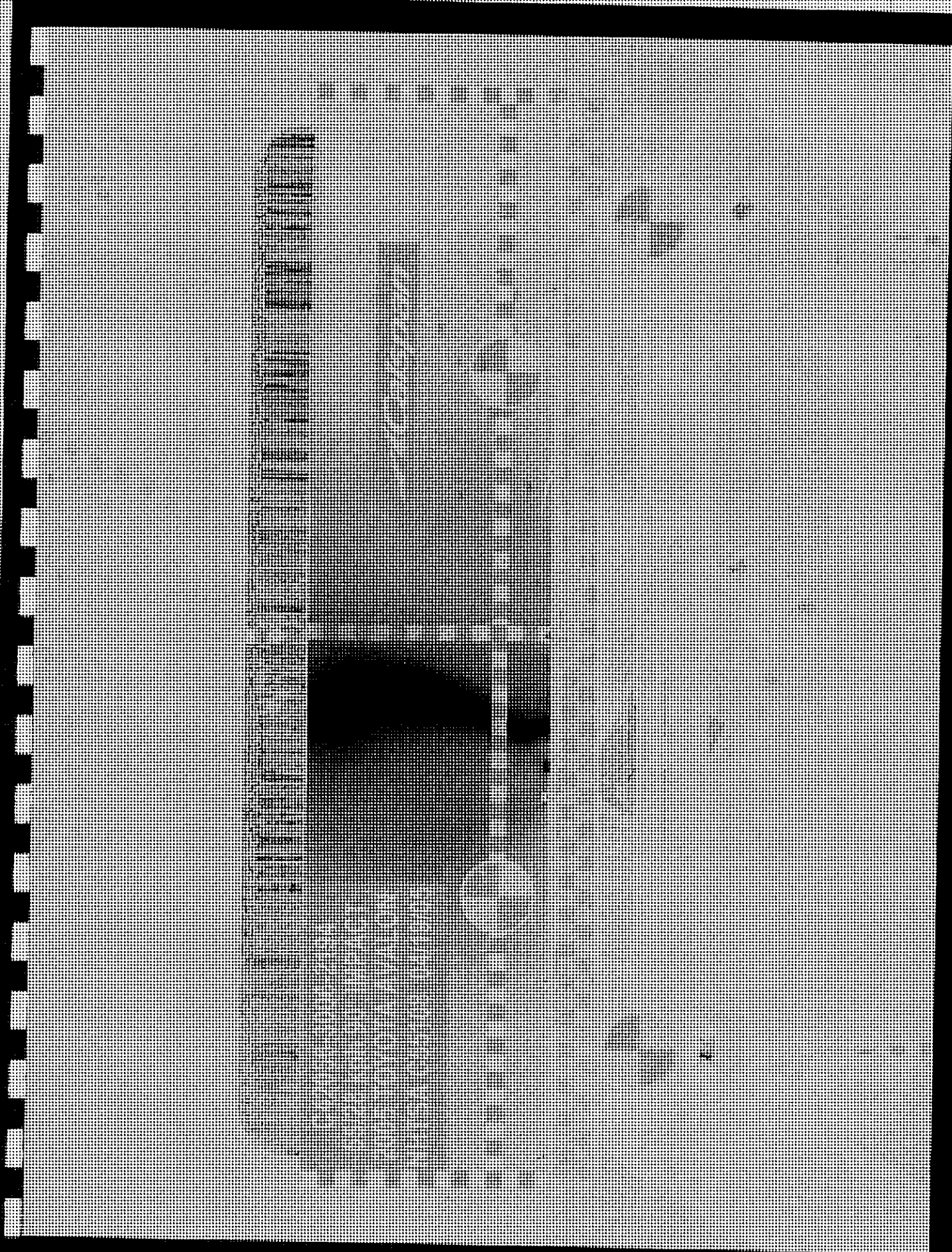


Figure A-24 PRE-TEST TOP VIEW OF IMPACTOR FACE

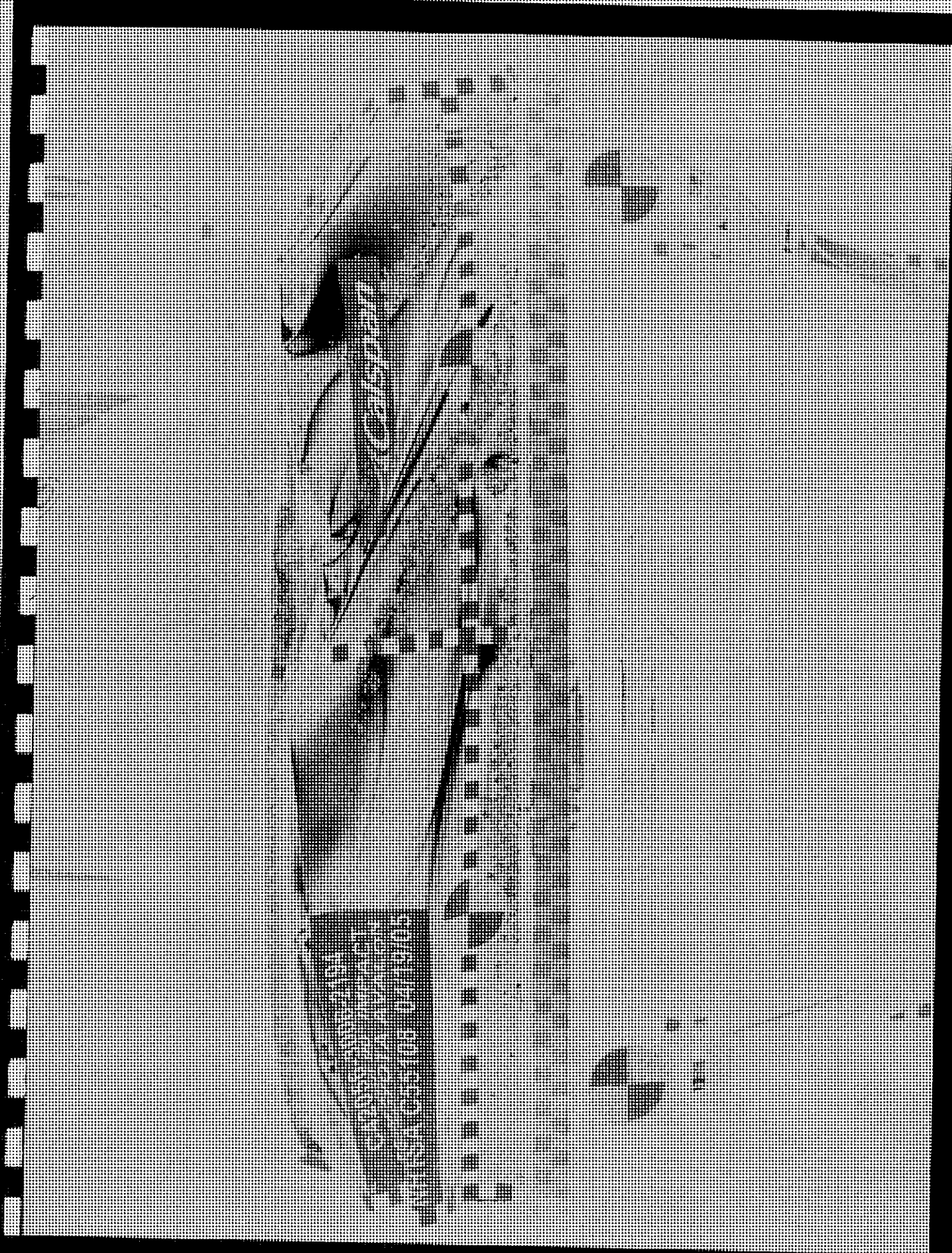


FIGURE A-22 POST TEST TOP VIEW OF IMPACTOR FACE



Figure A-25 PRE-TEST OVERHEAD VIEW OF ALIGNED MDH AND VEHICLE

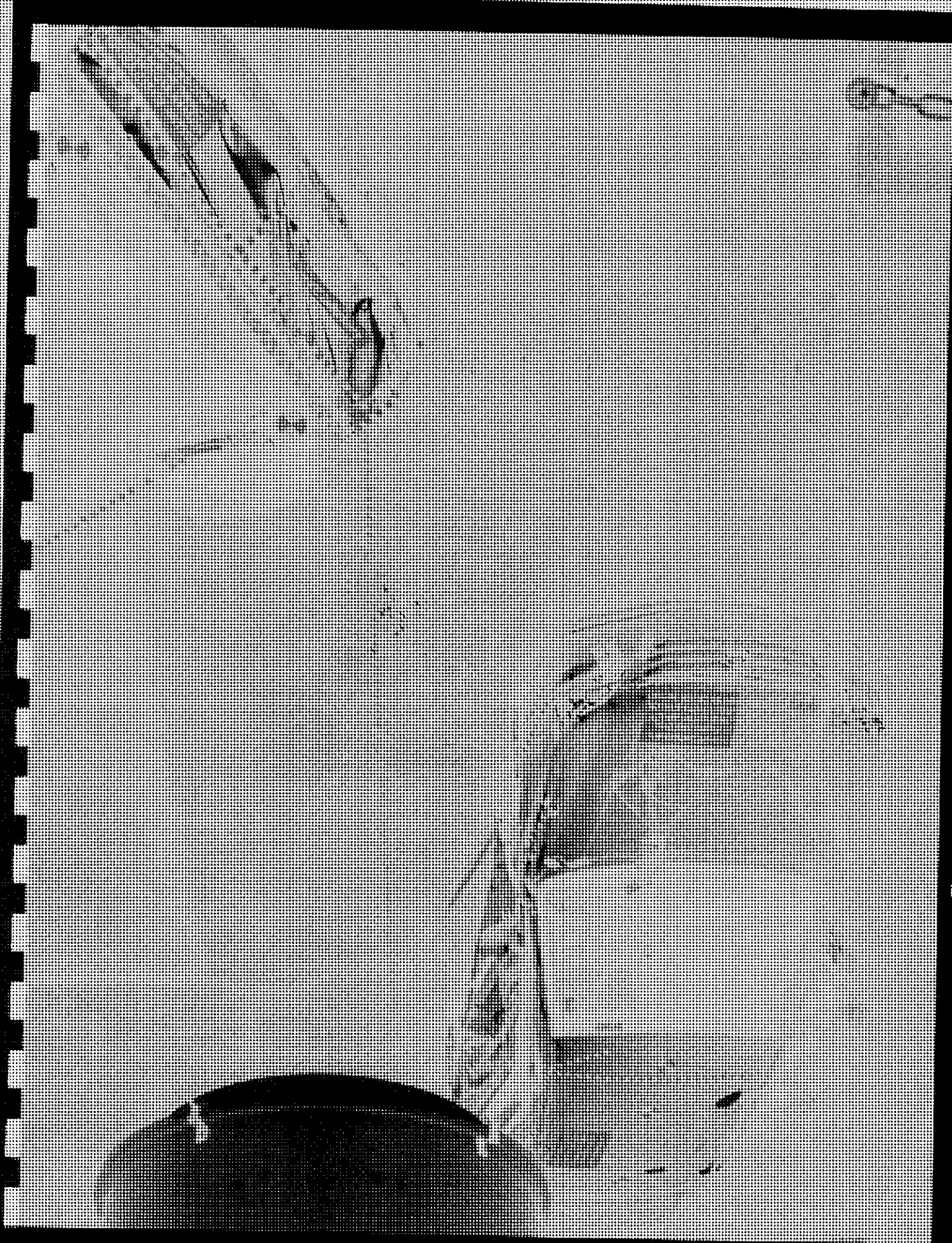


Figure A-24 POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE



Figure A-25 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID ID



Figure A-26 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3



Figure A-27 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID HC



Figure A-28 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID EB

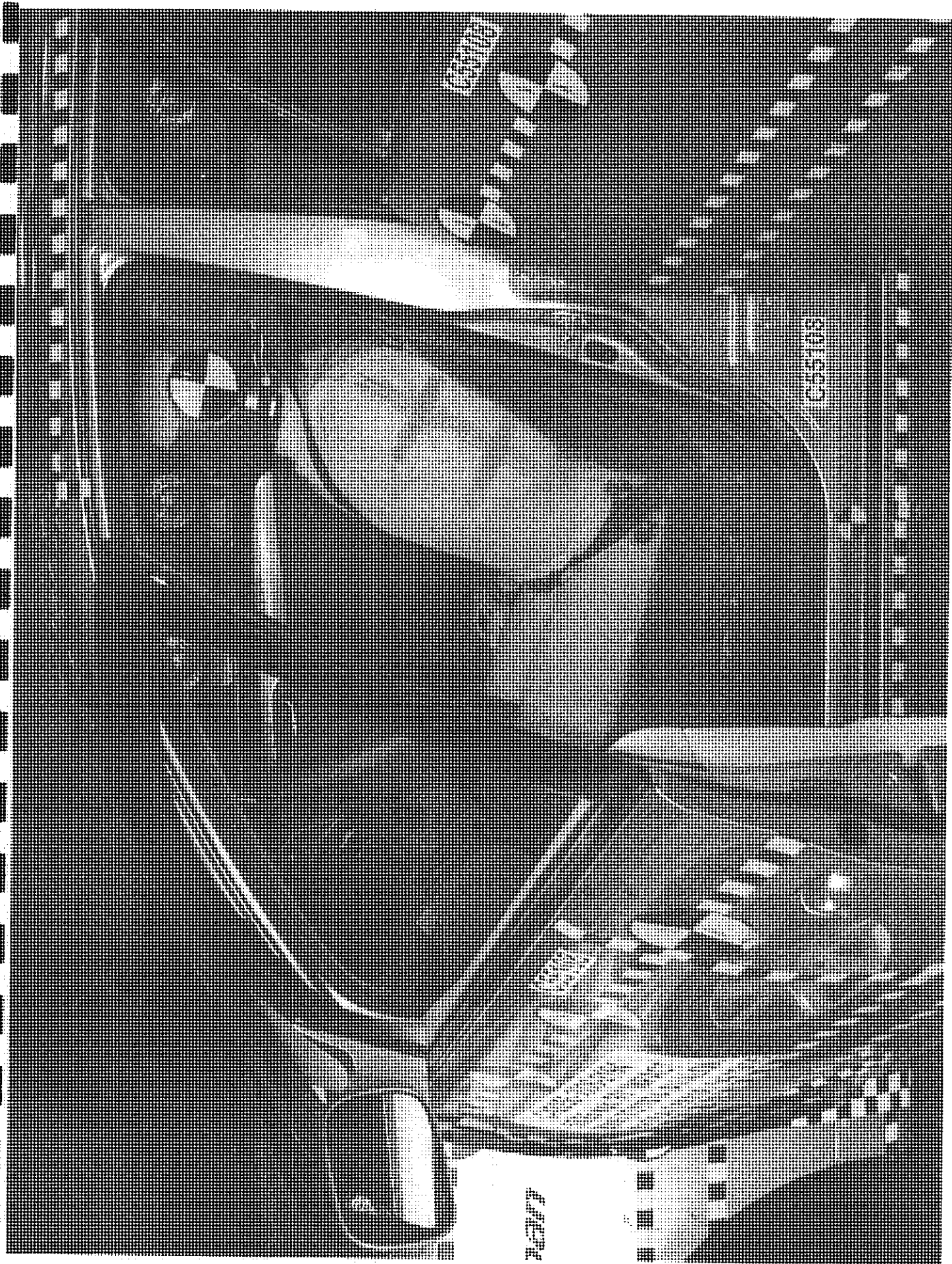


Figure A-29 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID II3

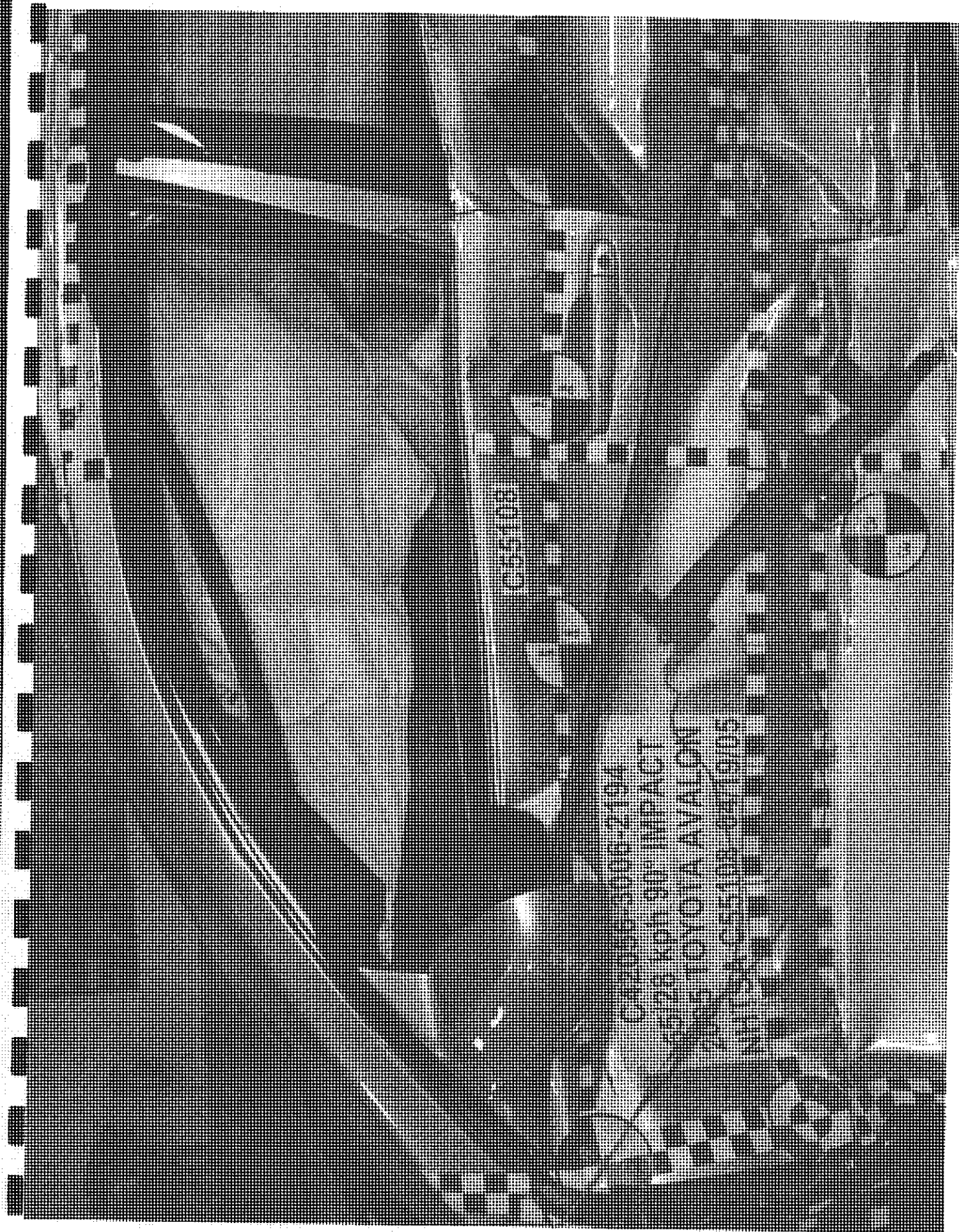


Figure A-30 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3

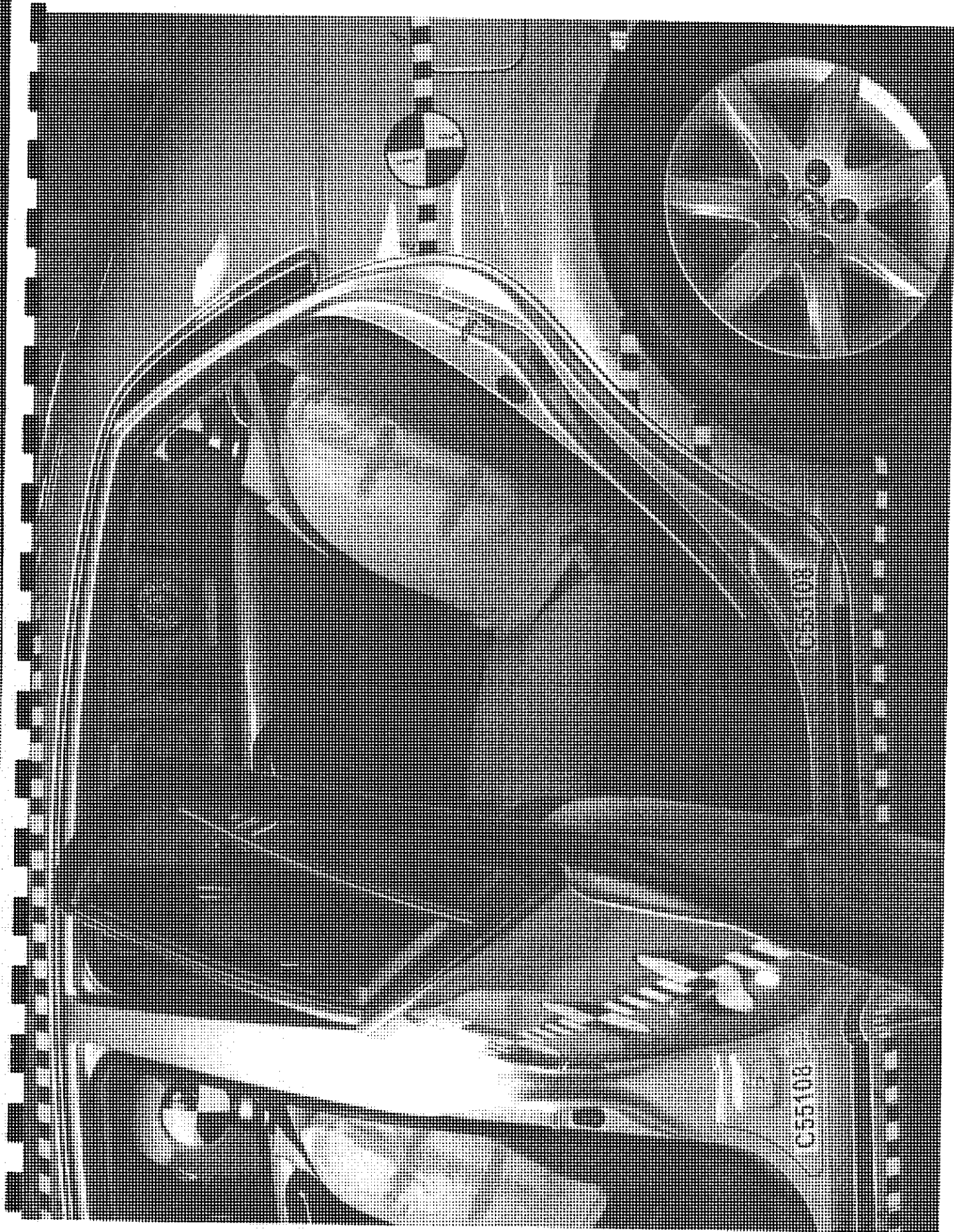


FIGURE A-31 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SIDE

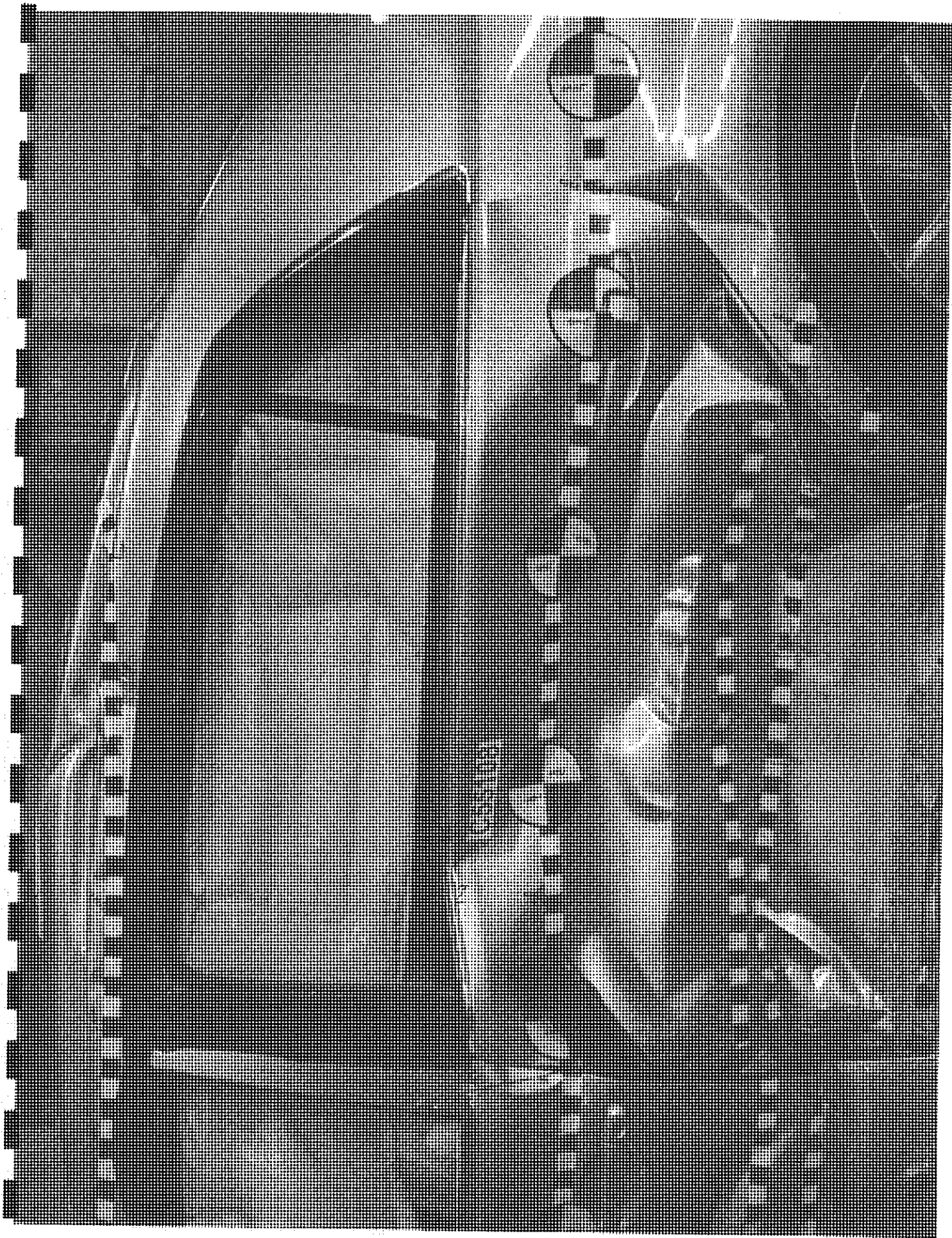


Figure A-32 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3

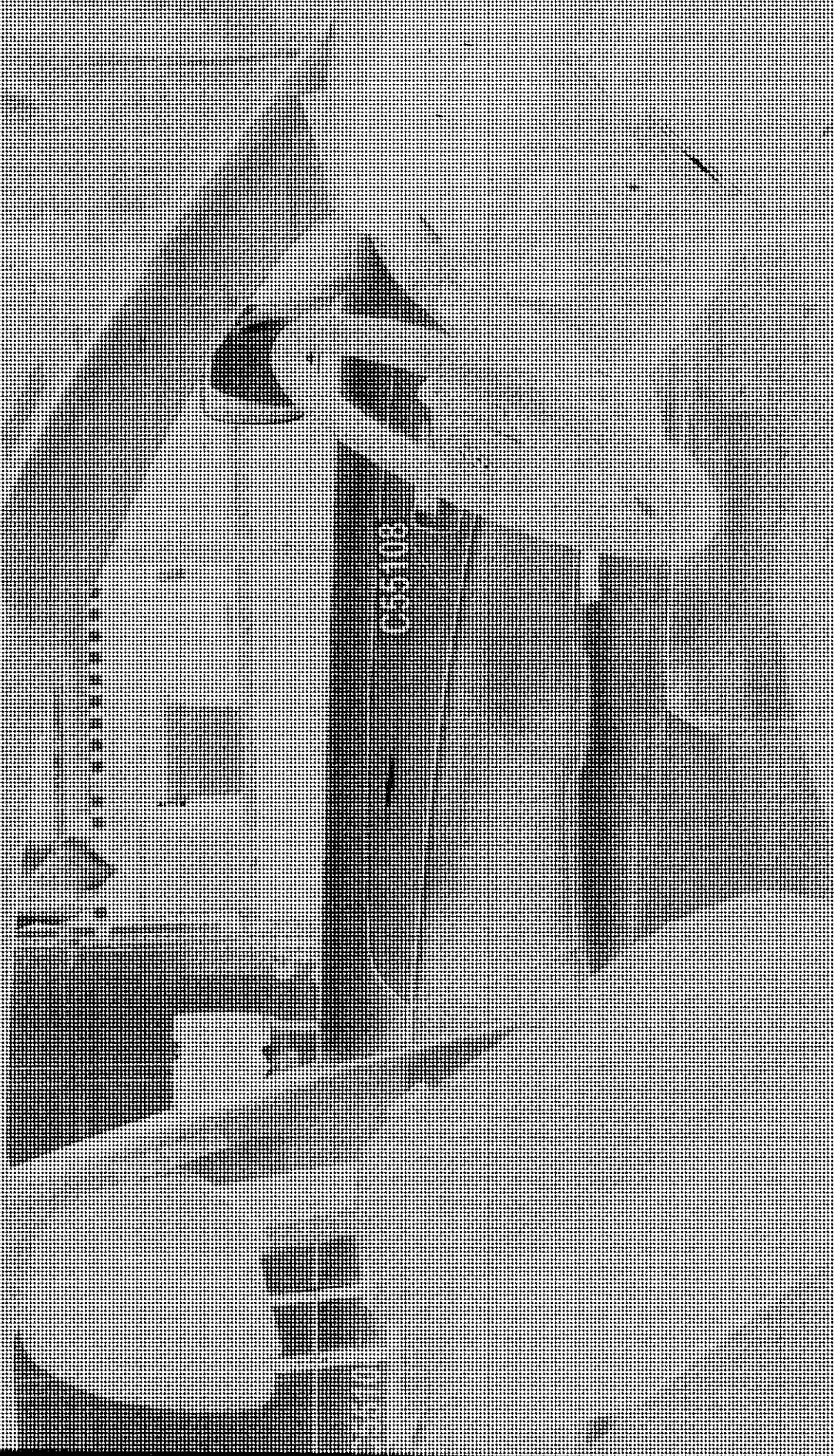


FIGURE A-33 PRE-TEST INTERIOR OF FRONT DOOR

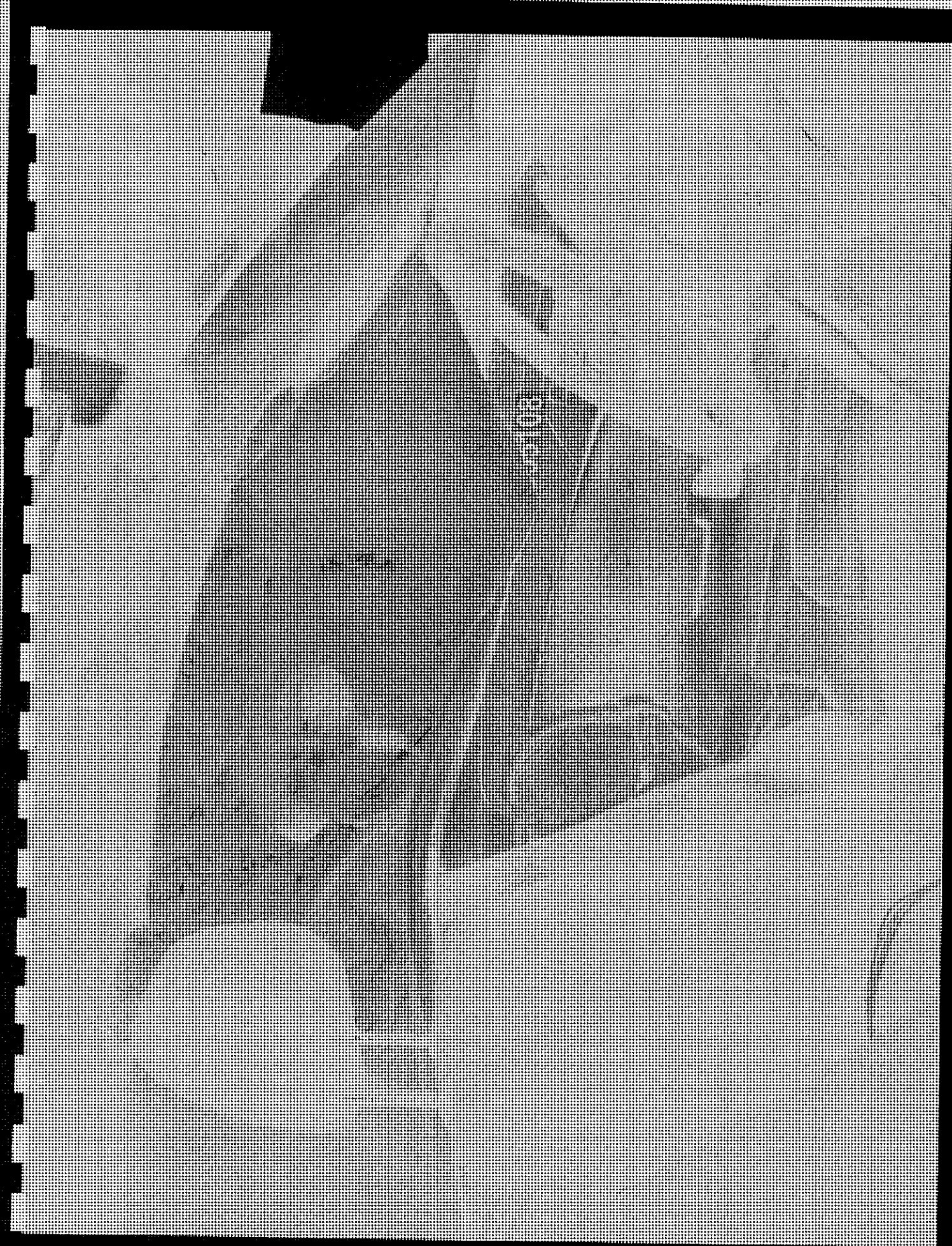


Figure A-34 POST-TEST INTERIOR OF FRONT END SHOWING SID HS IMPACT LOCATIONS

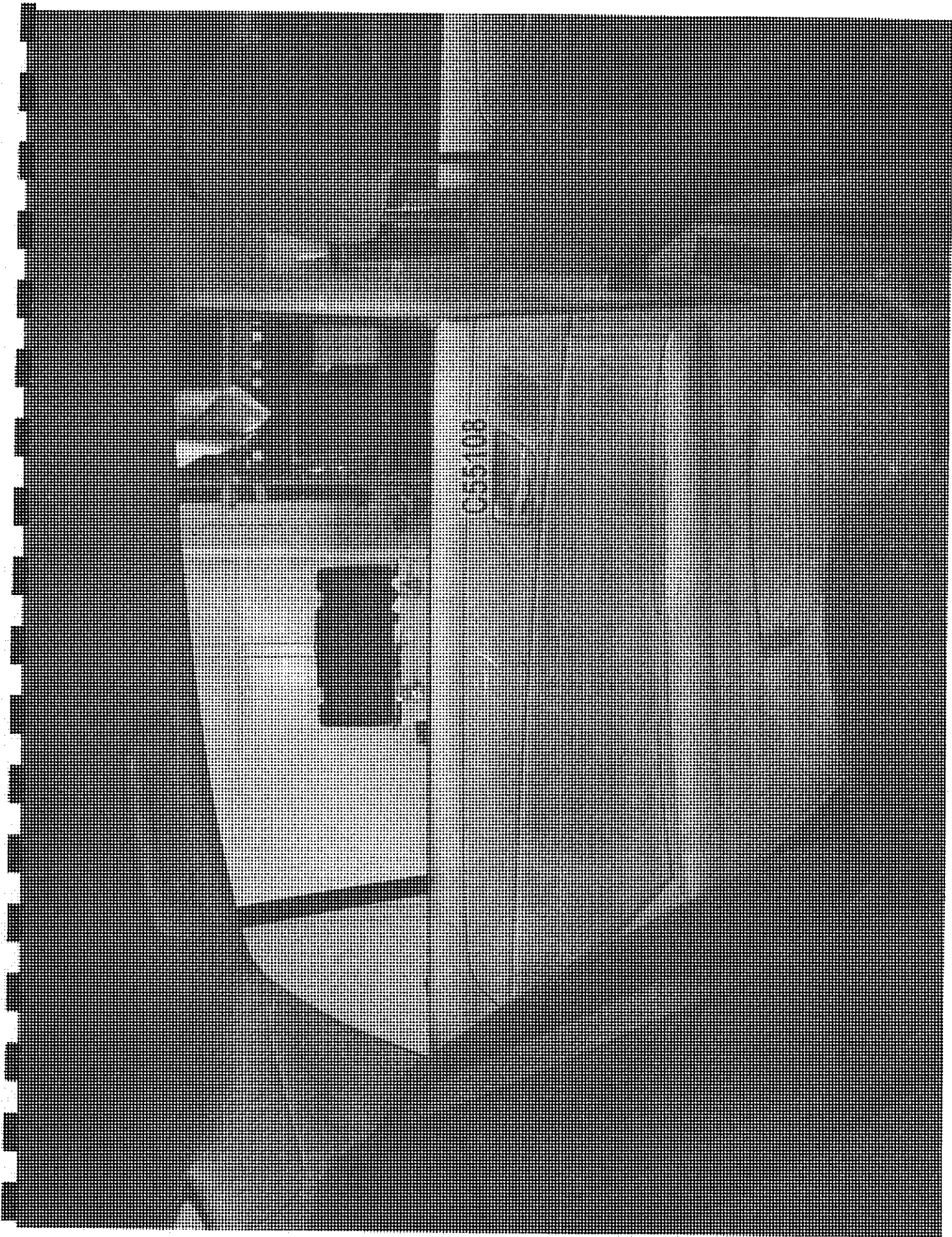


Figure A-35 PRE-TEST INTERIOR OF REAR DOOR

Figure A-36 POST-TEST INTERIOR OF REAR DOOR SHOWING SID H3 IMPACT LOCATIONS

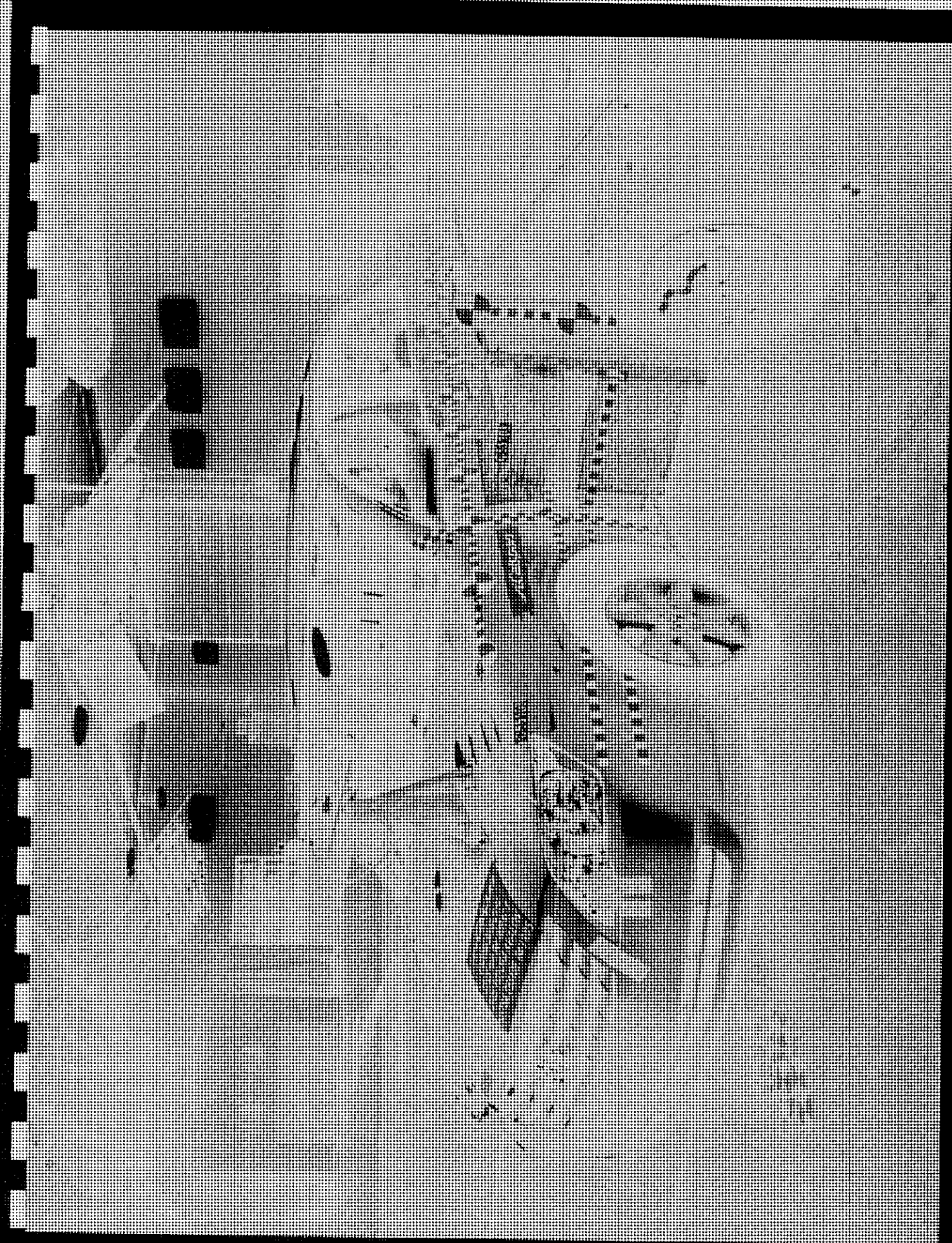


Figure A-37 PRE-TEST LEFT SIDE VIEW OF MDE WITH IMPACTOR FACE IN POSITION

Figure A-38 PRE-TEST RIGHT SIDE VIEW OF MDH WITH IMPACTOR FACE IN POSITION

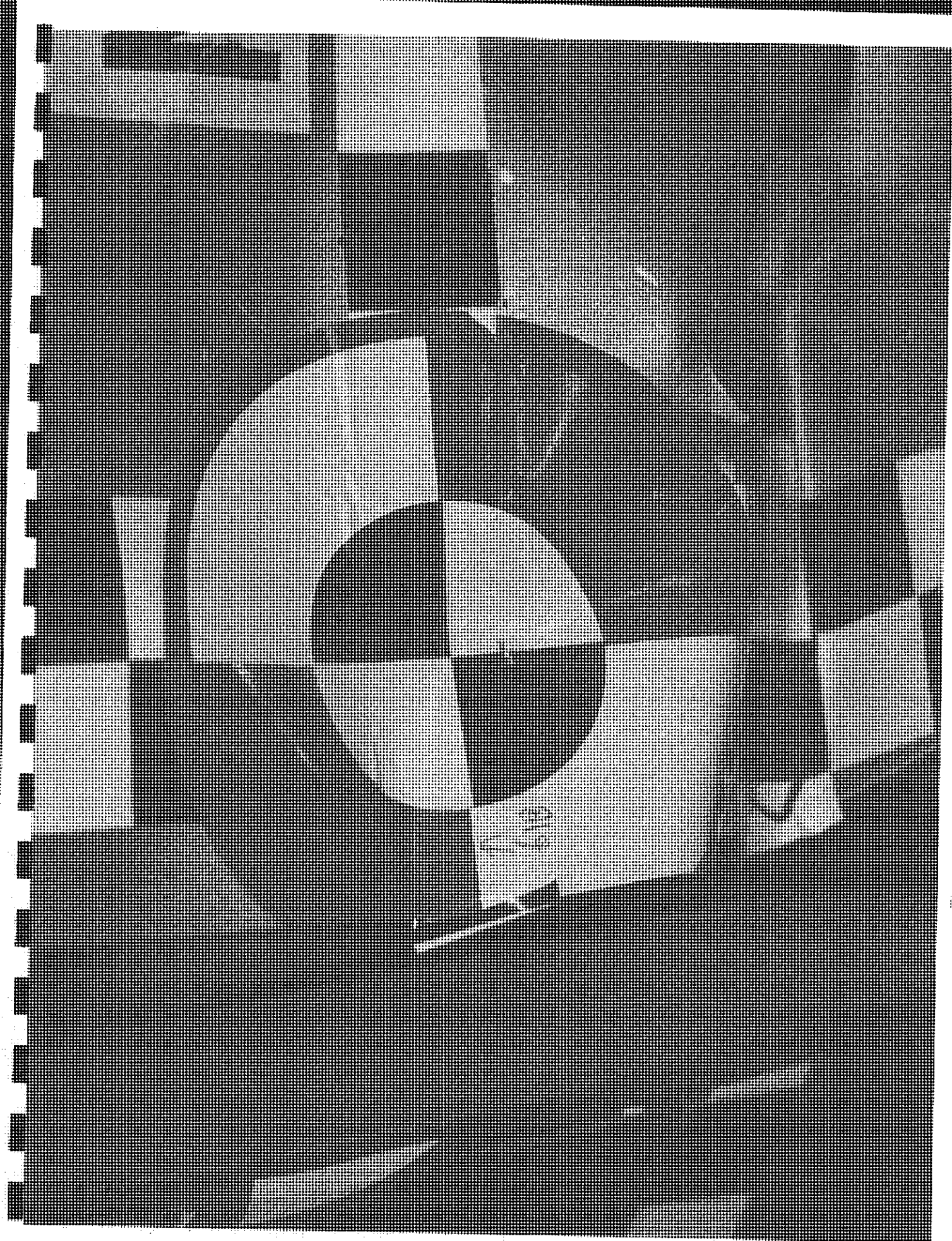
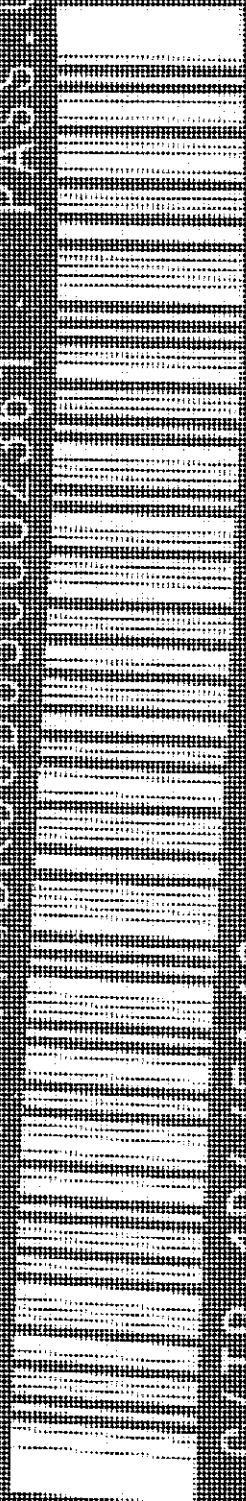


FIGURE A-39 POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET

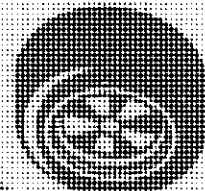
MFD. BY: TOYOTA MOTOR MANUFACTURING,
KENTUCKY, INC. 01/05
GVWR 4565LB GAWR 2665LB RR 2505LB
THIS VEHICLE CONFORMS TOTALLY APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY BUMPER AND
THEFT PREVENTION STANDARDS IN EFFECT ON
THE DATE OF MANUFACTURE SHOWN ABOVE. CAR



C/TR:1D4/FA16 GSX30L--AEANKA
A/TM:--01A/0151E

23249

Figure A-40 CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL



TIRE AND LOADING INFORMATION
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
PRÉVOYER DES RELAIS AUX PNEUS ET À LA CHARGE DU VÉHICULE
CONSULTEZ LE MANUEL D'UTILISATION POUR DE PLUS AMPLS DÉTAILS

SEATING CAPACITY	TOTAL	FRONT	REAR
NOMBRE DE PLACES	TOTAL : 5	AVANT : 2	ARRIÈRE : 3

The combined weight of occupants and cargo should never exceed 397kg or 875lbs.
 La charge du véhicule (occupants et bagages) ne doit jamais dépasser 397kg ou 875lbs.

ORIGINAL TIRE SIZE	COLD TIRE INFLATION PRESSURE
DIMENSIONS DES PNEUS D'ORIGINE	PRESSION DE GONFLAGE À FROID
FRONT/AVANT P215/60R16	FRONT/AVANT 200 kPa, 29PSI
REAR/ARRIÈRE P215/60R16	REAR/ARRIÈRE 200 kPa, 29PSI
FULL SIZE SPARE TIRE	COLD TIRE INFLATION PRESSURE
ROUE DE SECOURS PLEINE GRANDEUR	PRESSION DE GONFLAGE À FROID
P215/60R16	200 kPa, 29PSI

A1

CAUTION



Figure A-41 CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL

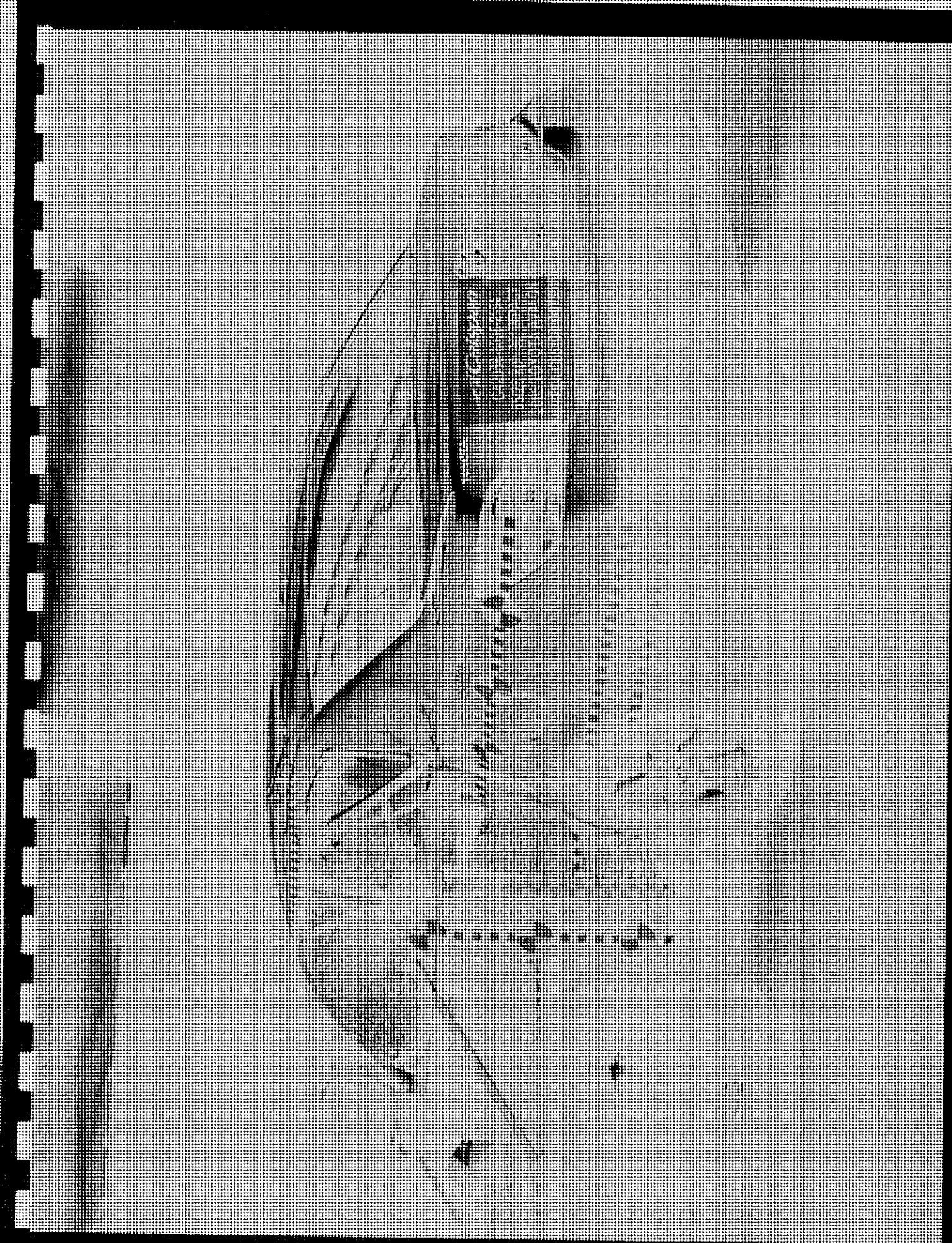


Figure A-42 IMPACT PHOTO

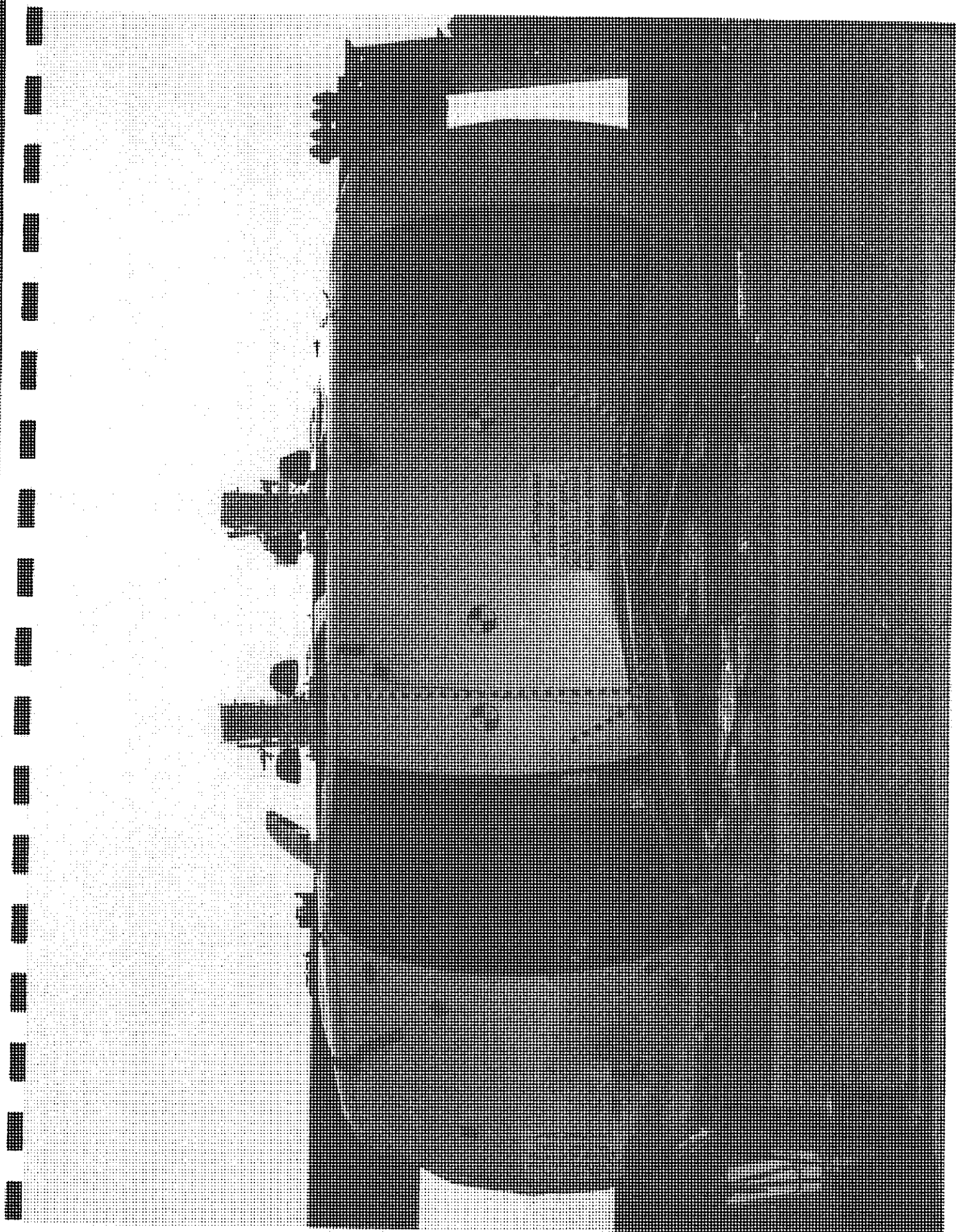


Figure A-45 ROLLOVER 90 DEGREES

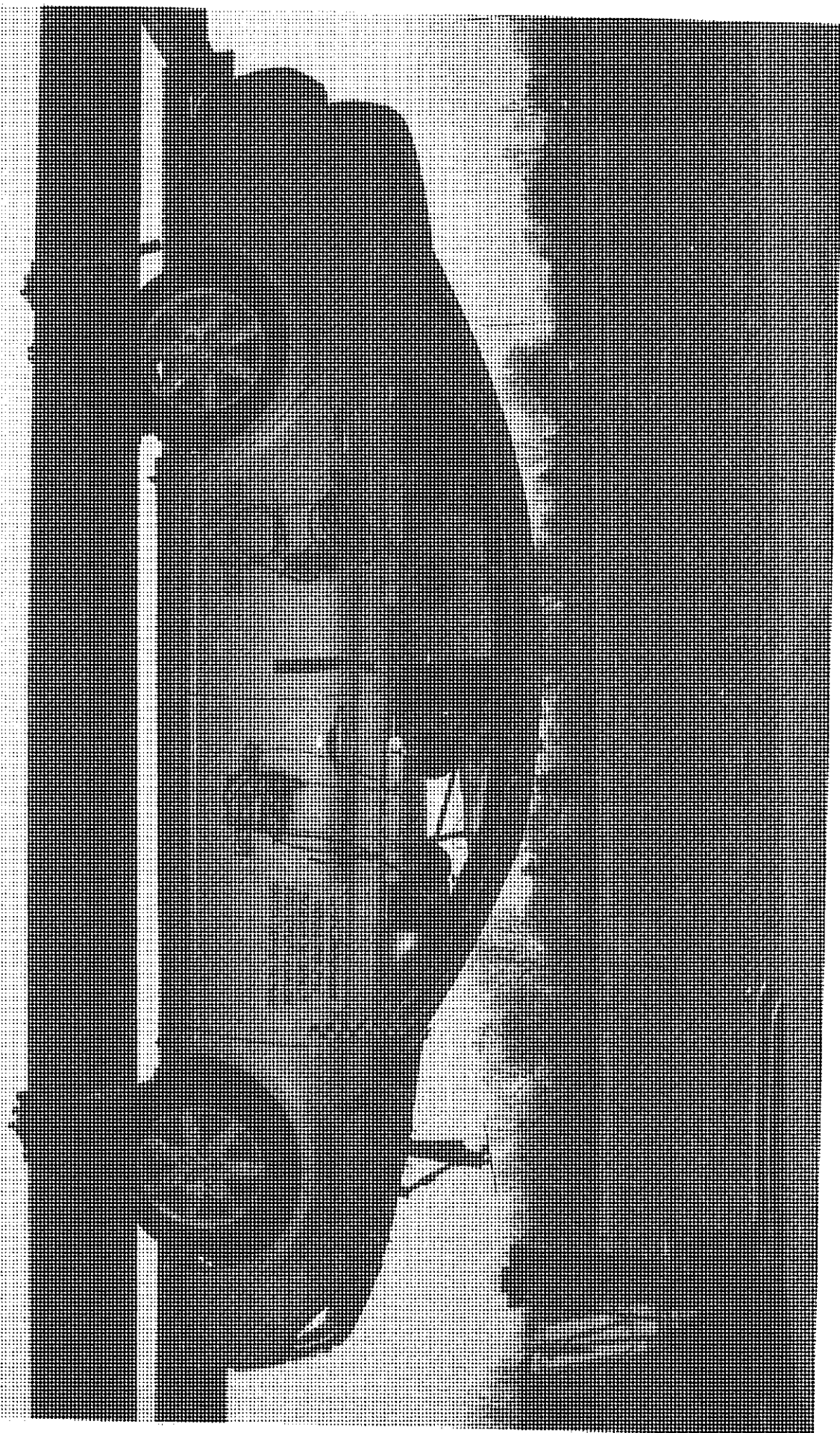


FIGURE A-44 ROLLOVER 180 DEGREES

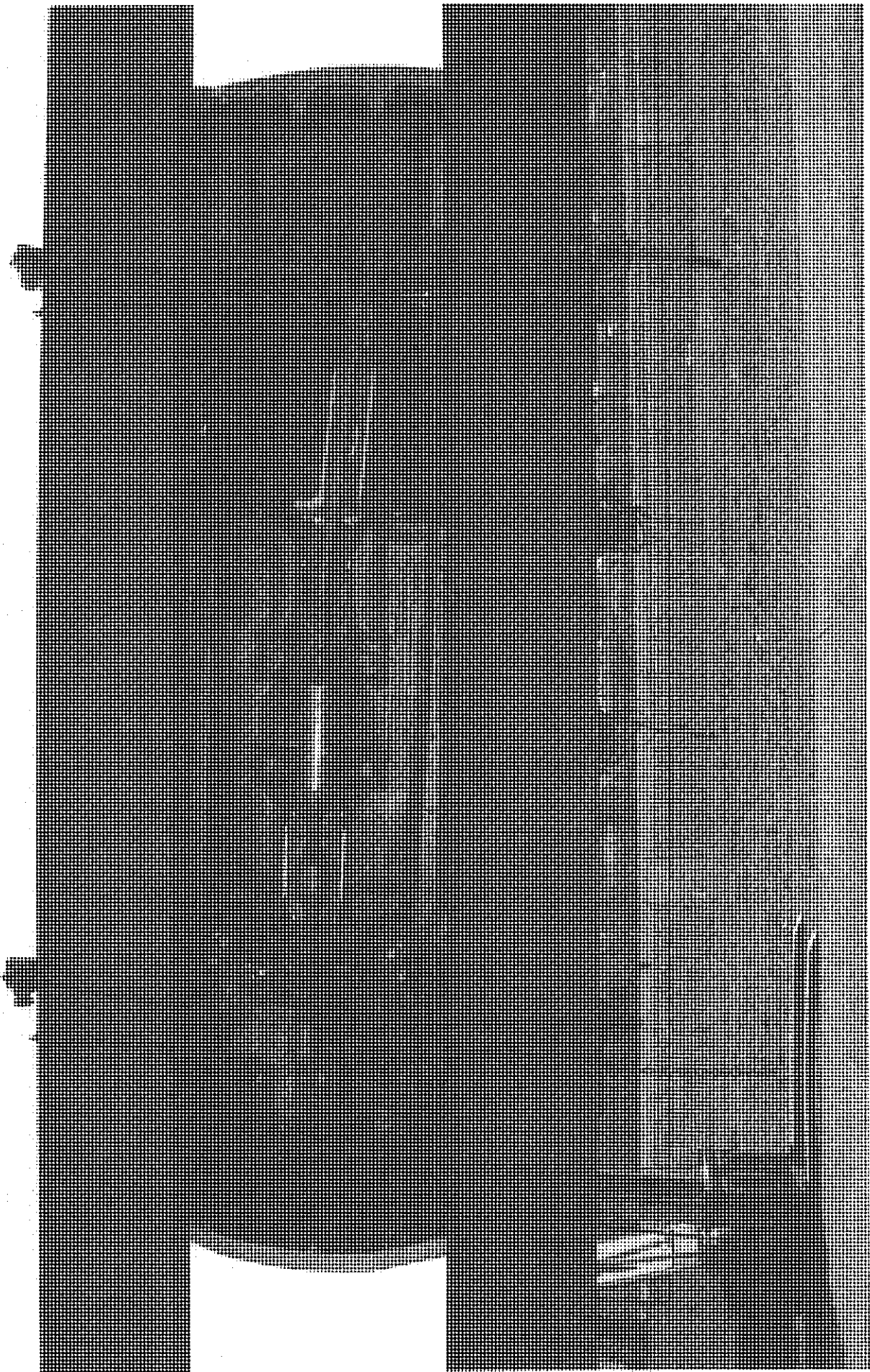


FIGURE A-45 ROLLOVER 270 DEGREES

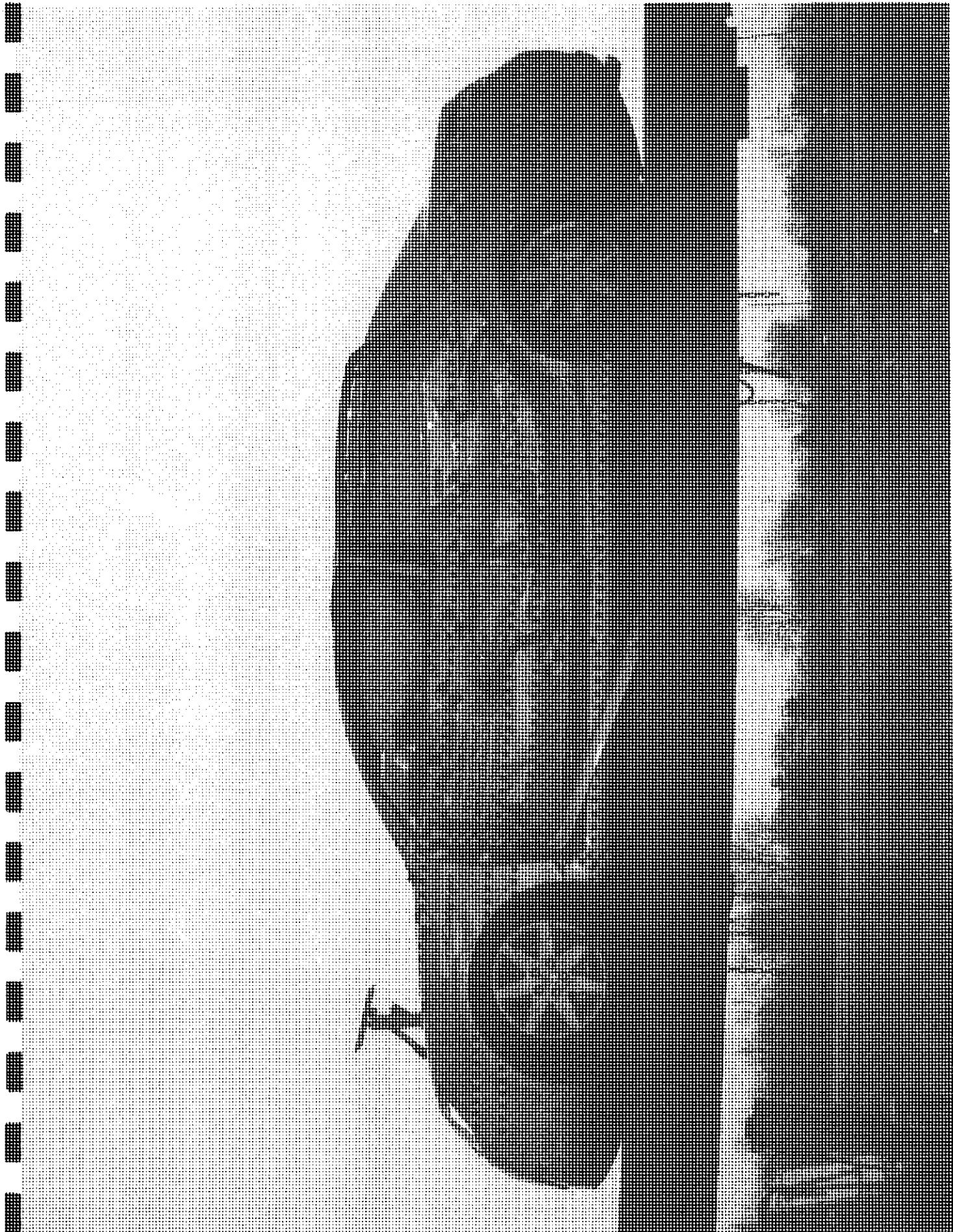


Figure A-46 ROLLOVER 360 DEGREES

APPENDIX B

VEHICLE, MDB AND SID HYBRID III RESPONSE DATA

TABLE OF DATA PLOTS

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS

ACCELERATION, FORCE AND MOMENT DATA - FILTER CLASS 1000, LOWER SPINE - FILTER CLASS 180
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER HEAD (X) ACCELERATION VS TIME	B- 6
2	DRIVER HEAD (X) VELOCITY VS TIME	B- 7
3	DRIVER HEAD (Y) ACCELERATION VS TIME	B- 8
4	DRIVER HEAD (Y) VELOCITY VS TIME	B- 9
5	DRIVER HEAD (Z) ACCELERATION VS TIME	B- 10
6	DRIVER HEAD (Z) VELOCITY VS TIME	B- 11
7	DRIVER HEAD RESULTANT ACCELERATION VS TIME	B- 12
8	DRIVER UPPER NECK (X) FORCE VS TIME	B- 13
9	DRIVER UPPER NECK (Y) FORCE VS TIME	B- 14
10	DRIVER UPPER NECK (Z) FORCE VS TIME	B- 15
11	DRIVER UPPER NECK RESULTANT FORCE VS TIME	B- 16
12	DRIVER UPPER NECK (X) MOMENT VS TIME	B- 17
13	DRIVER UPPER NECK (Y) MOMENT VS TIME	B- 18
14	DRIVER UPPER NECK (Z) MOMENT VS TIME	B- 19
15	DRIVER UPPER NECK RESULTANT MOMENT VS TIME	B- 20
16	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 21
17	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 22
18	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 23
19	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 24
20	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 25
21	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 26
22	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 27
23	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 28
24	PASSENGER HEAD (X) ACCELERATION VS TIME	B- 29
25	PASSENGER HEAD (X) VELOCITY VS TIME	B- 30
26	PASSENGER HEAD (Y) ACCELERATION VS TIME	B- 31
27	PASSENGER HEAD (Y) VELOCITY VS TIME	B- 32
28	PASSENGER HEAD (Z) ACCELERATION VS TIME	B- 33
29	PASSENGER HEAD (Z) VELOCITY VS TIME	B- 34
30	PASSENGER HEAD RESULTANT ACCELERATION VS TIME	B- 35
31	PASSENGER UPPER NECK (X) FORCE VS TIME	B- 36
32	PASSENGER UPPER NECK (Y) FORCE VS TIME	B- 37
33	PASSENGER UPPER NECK (Z) FORCE VS TIME	B- 38
34	PASSENGER UPPER NECK RESULTANT FORCE VS TIME	B- 39
35	PASSENGER UPPER NECK (X) MOMENT VS TIME	B- 40
36	PASSENGER UPPER NECK (Y) MOMENT VS TIME	B- 41
37	PASSENGER UPPER NECK (Z) MOMENT VS TIME	B- 42
38	PASSENGER UPPER NECK RESULTANT MOMENT VS TIME	B- 43
39	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 44
40	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 45
41	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 46
42	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 47
43	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 48
44	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 49
45	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 50
46	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 51

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS

ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
47	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 52
48	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 53
49	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 54
50	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 55
51	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 56
52	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 57
53	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 58
54	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 59

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
55	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 60
56	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 61
57	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 62
58	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 63
59	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 64
60	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 65
61	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 66
62	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 67
63	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 68
64	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 69
65	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 70
66	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 71
67	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 72
68	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 73
69	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 74
70	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 75
71	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 76
72	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 77
73	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 78
74	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 79
75	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 80
76	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 81
77	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 82
78	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 83
79	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 84
80	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 85
81	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 86
82	LOWER B-POST (Y) ACCELERATION VS TIME	B- 87
83	LOWER B-POST (Y) VELOCITY VS TIME	B- 88
84	UPPER B-POST (Y) ACCELERATION VS TIME	B- 89
85	UPPER B-POST (Y) VELOCITY VS TIME	B- 90
86	LOWER A-POST (Y) ACCELERATION VS TIME	B- 91
87	LOWER A-POST (Y) VELOCITY VS TIME	B- 92
88	UPPER A-POST (Y) ACCELERATION VS TIME	B- 93
89	UPPER A-POST (Y) VELOCITY VS TIME	B- 94
90	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 95
91	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 96
92	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B- 97
93	REAR SEAT TRACK (Y) VELOCITY VS TIME	B- 98

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
94	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 99
95	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 100
96	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 101
97	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B- 102
98	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 103
99	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 104
100	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 105

MDB INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
101	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 106
102	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 107
103	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 108
104	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 109
105	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 110
106	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 111
107	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 112
108	MDB REAR (X) ACCELERATION VS TIME	B- 113
109	MDB REAR (X) VELOCITY VS TIME	B- 114
110	MDB REAR (Y) ACCELERATION VS TIME	B- 115
111	MDB REAR (Y) VELOCITY VS TIME	B- 116

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)
ACCELERATION DATA - FILTER CLASS 1000, LOWER SPINE - FILTER CLASS 180
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
112	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 117
113	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 118
114	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 119
115	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 120
116	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 121
117	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 122
118	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 123
119	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 124
120	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 125
121	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 126
122	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 127
123	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 128
124	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 129
125	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 130
126	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 131
127	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 132

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)
ACCELERATION DATA - FIR FILTERED

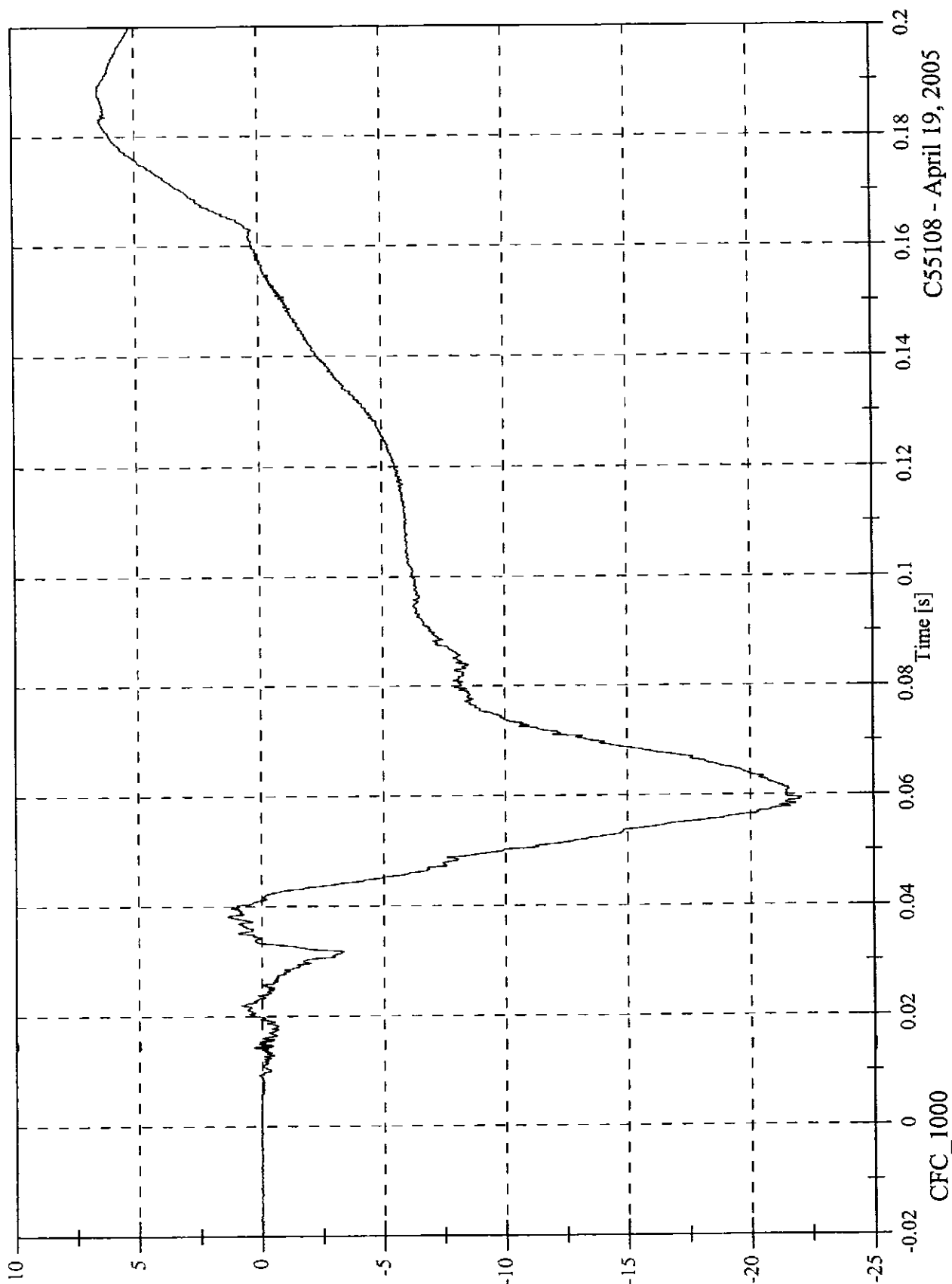
<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
128	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 133
129	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 134
130	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 135
131	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 136
132	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 137
133	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 138
134	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 139
135	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 140

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 6.5 [g] at 0.187 [s]

Min: -22.1 [g] at 0.059 [s]

V2P1 Head x



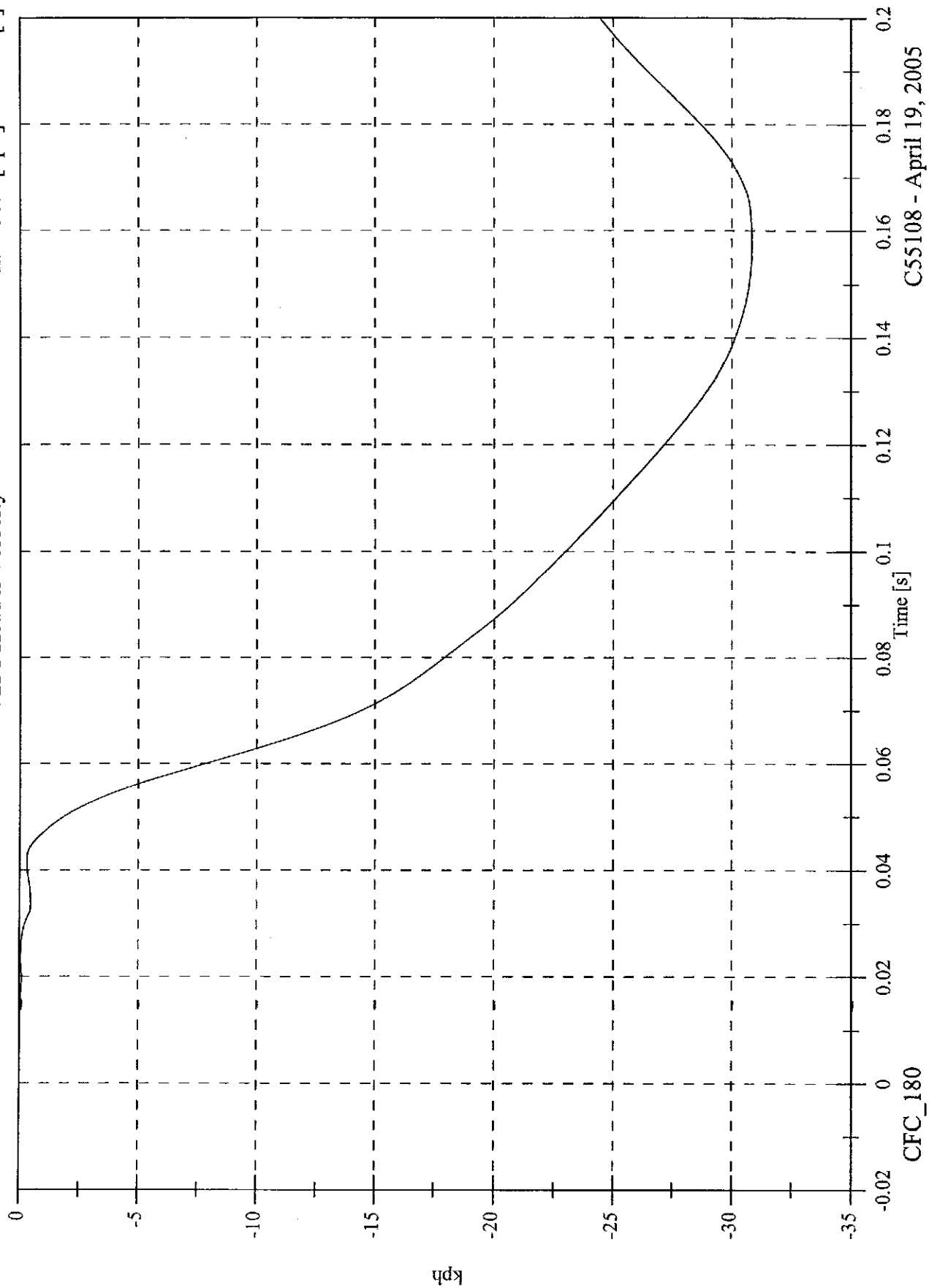
C55108 - April 19, 2005

2005 F MVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 0.0 [kph] at 0.005 [s]

Min: -30.9 [kph] at 0.157 [s]

V2P1 Head x Velocity

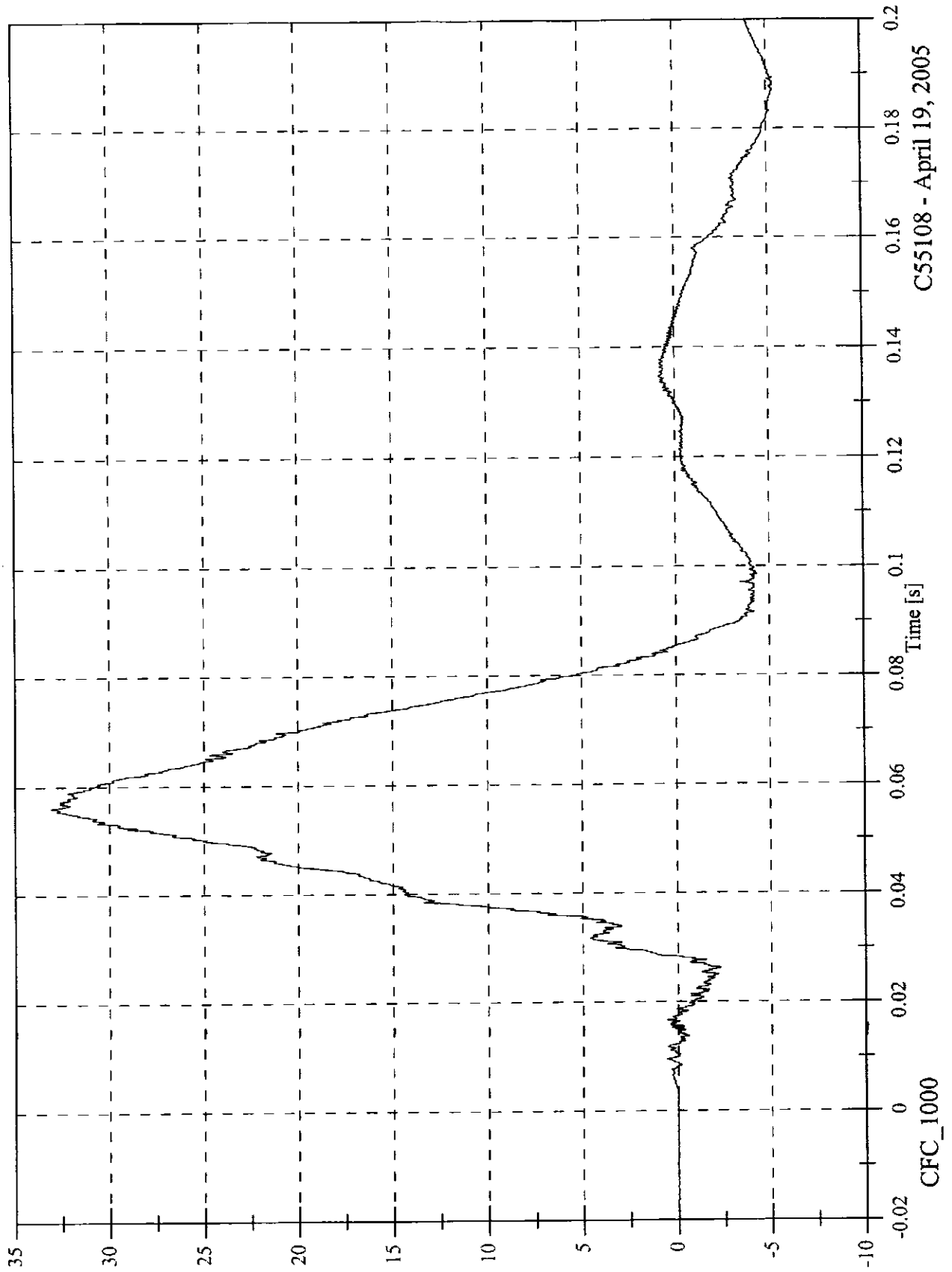


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 33.1 [g] at 0.056 [s]
 Min: -5.4 [g] at 0.189 [s]

V2P1 Head y

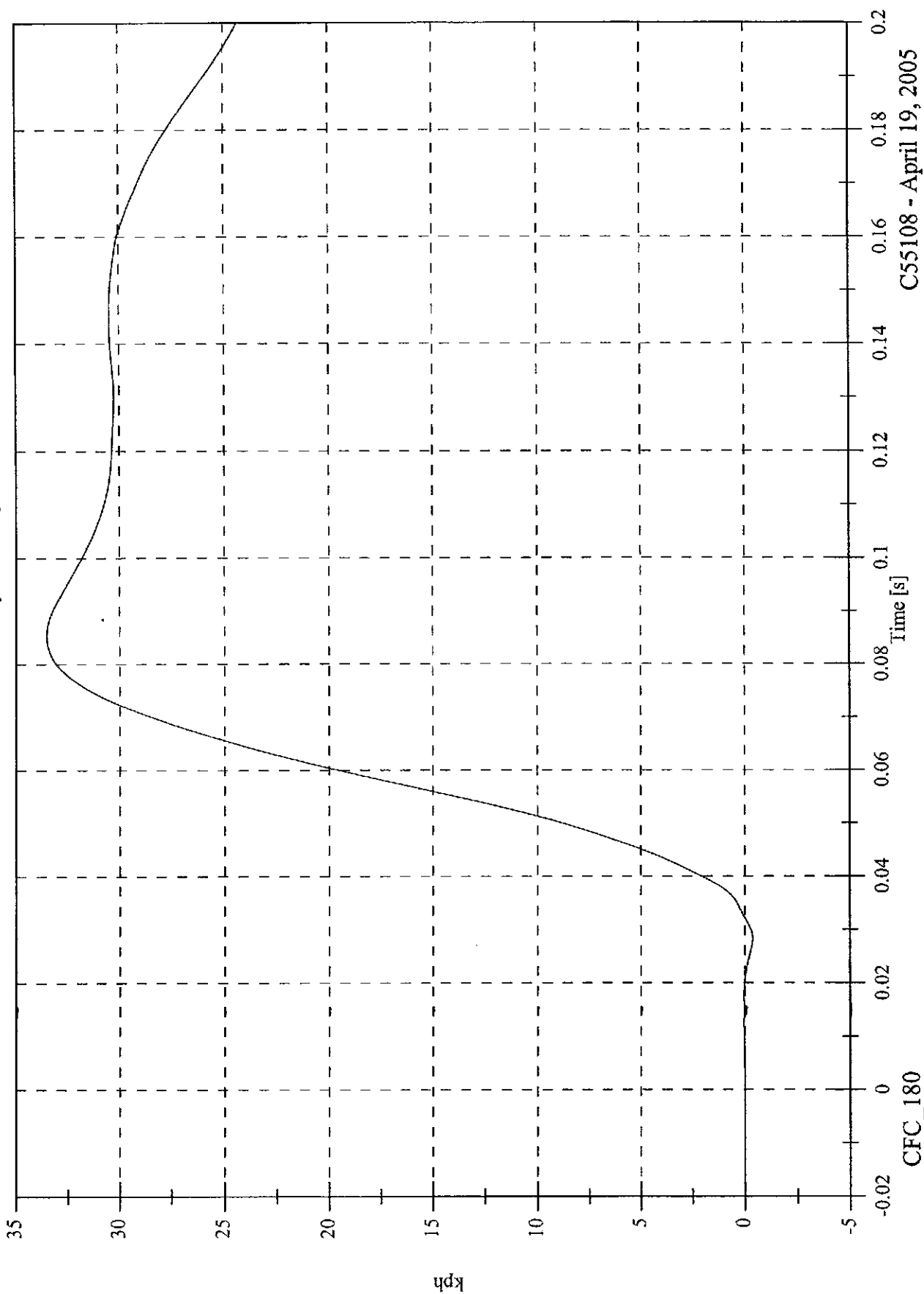


C55108 - April 19, 2005

2005 FMCVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 33.5 [kph] at 0.085 [s]
Min: -0.4 [kph] at 0.028 [s]

V2PI Head y Velocity

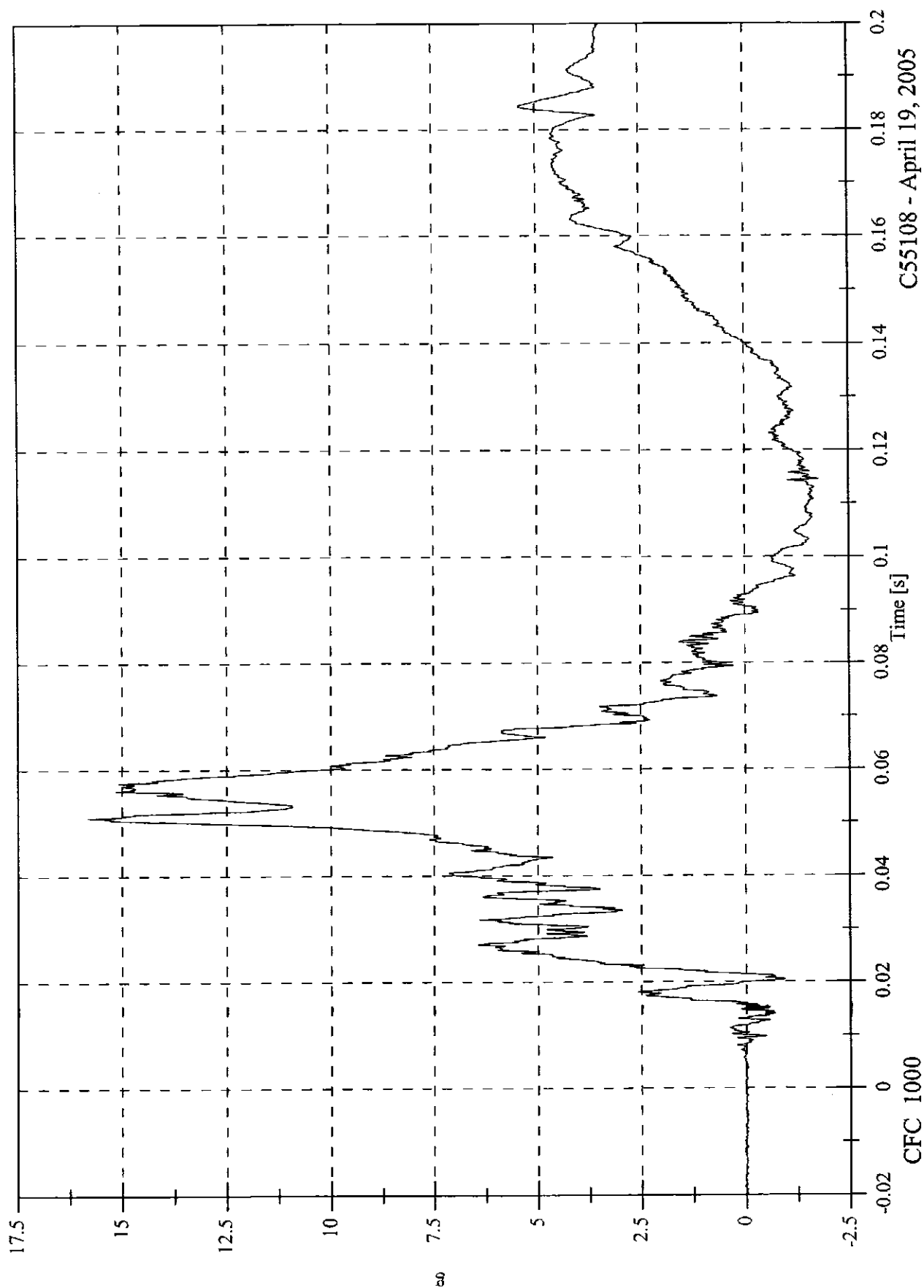


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 15.8 [g] at 0.051 [s]
 Min: -1.8 [g] at 0.114 [s]

V2P1 Head z

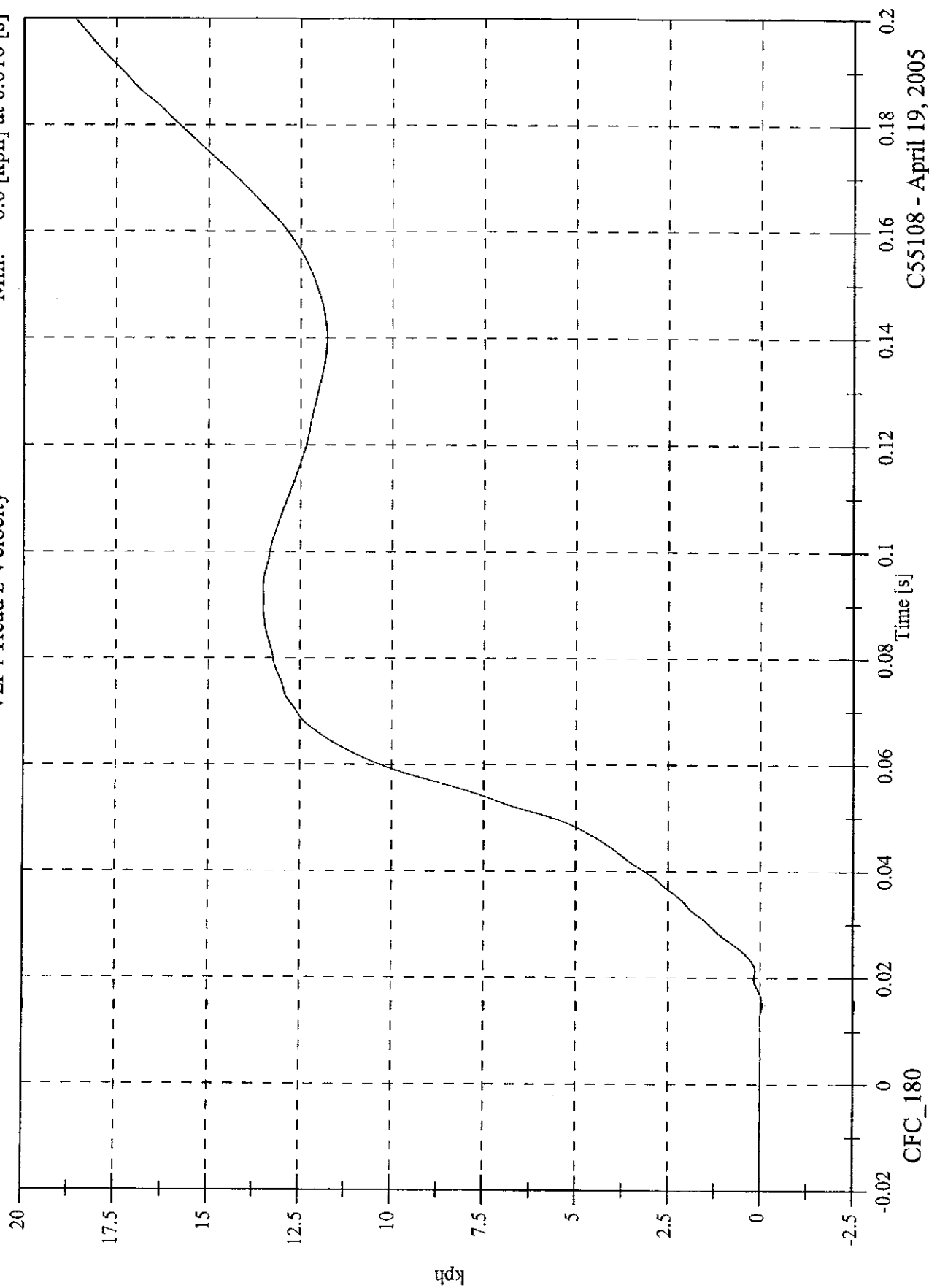


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Head z Velocity

Max: 18.6 [kph] at 0.200 [s]
Min: -0.0 [kph] at 0.016 [s]

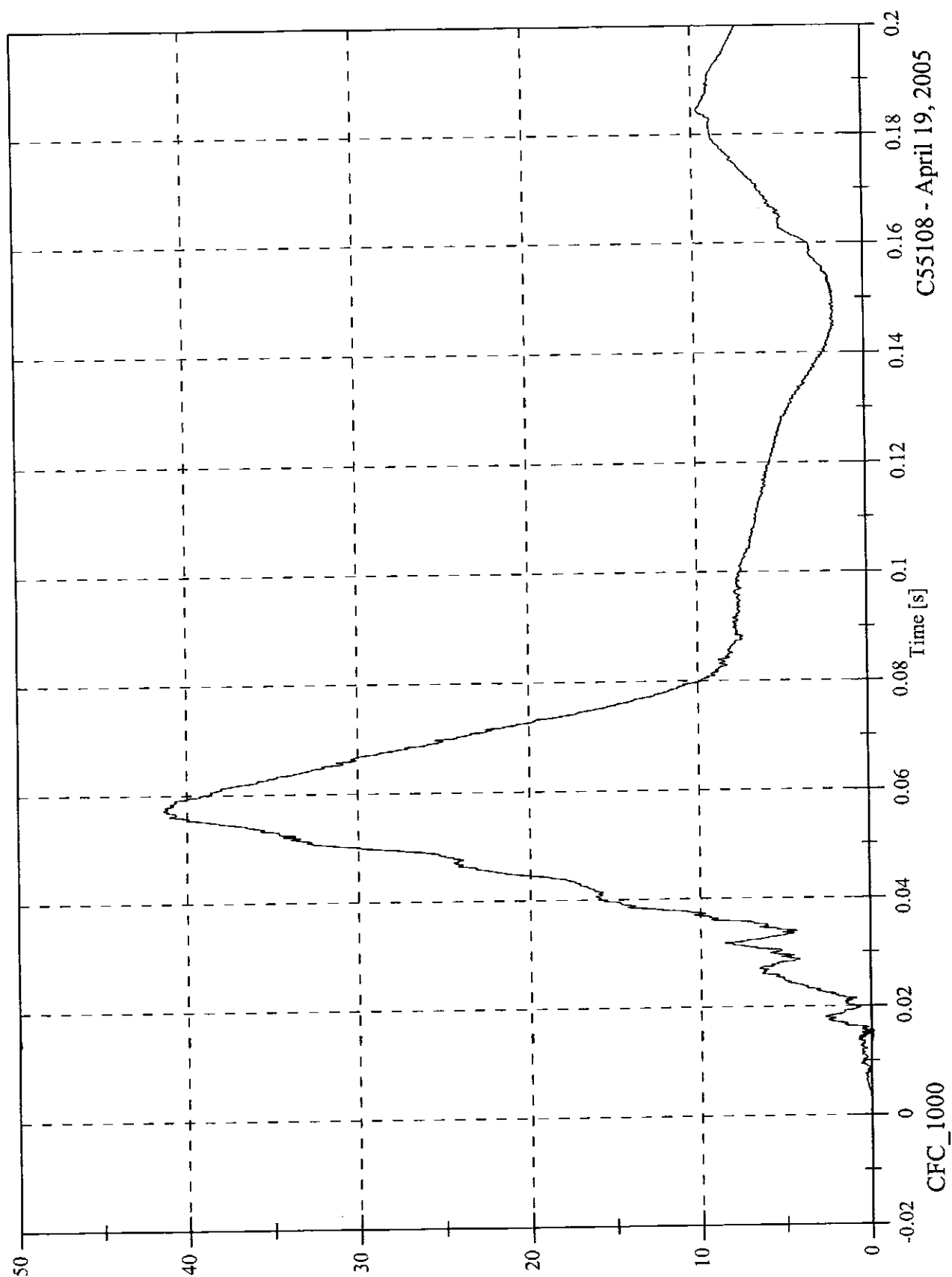


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Head Resultant

Max: 41.4 [g] at 0.057 [s]
Min: 0.0 [g] at -0.015 [s]

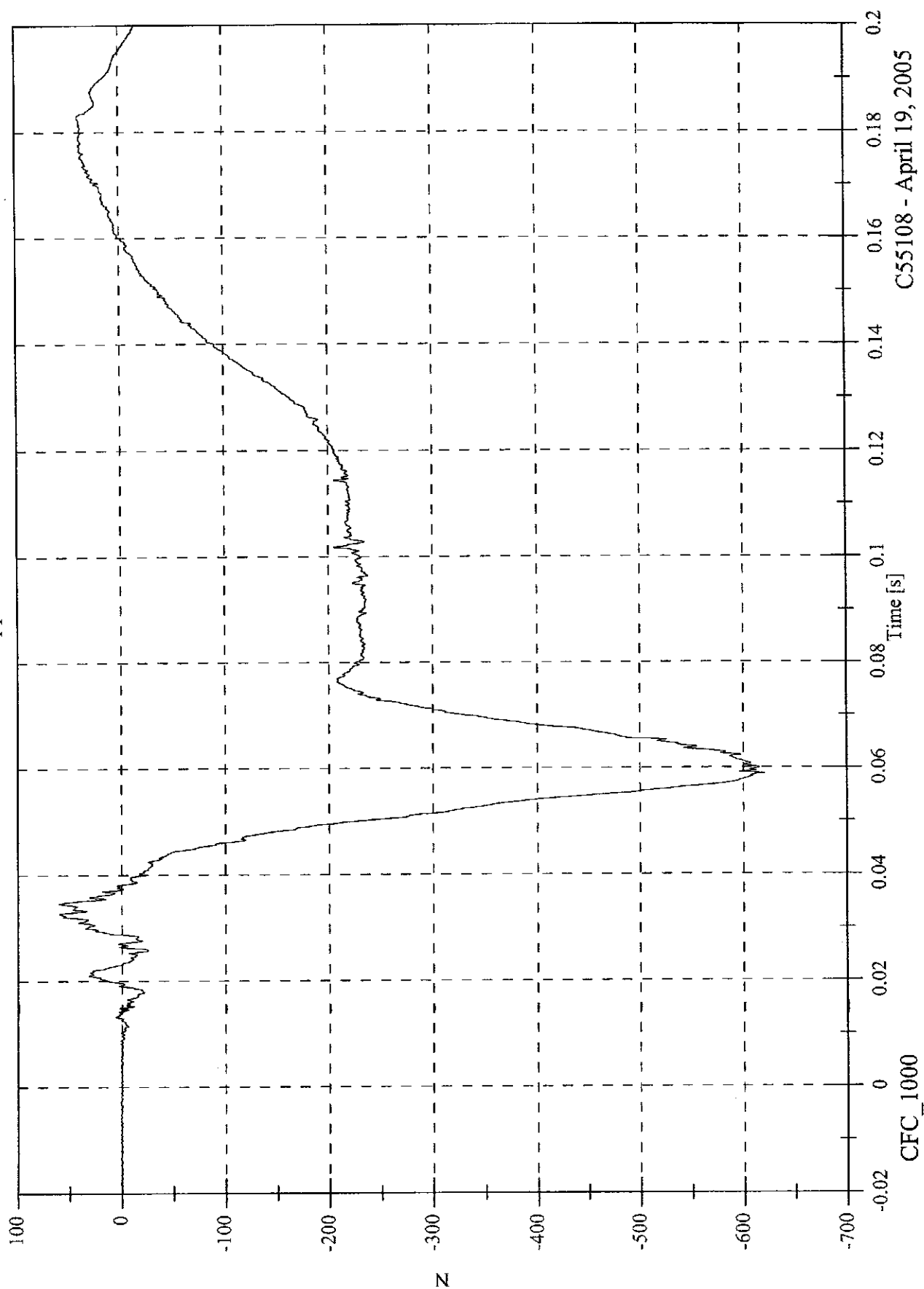


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Upper Neck Fx

Max: 60.2 [N] at 0.035 [s]
Min: -620.0 [N] at 0.059 [s]

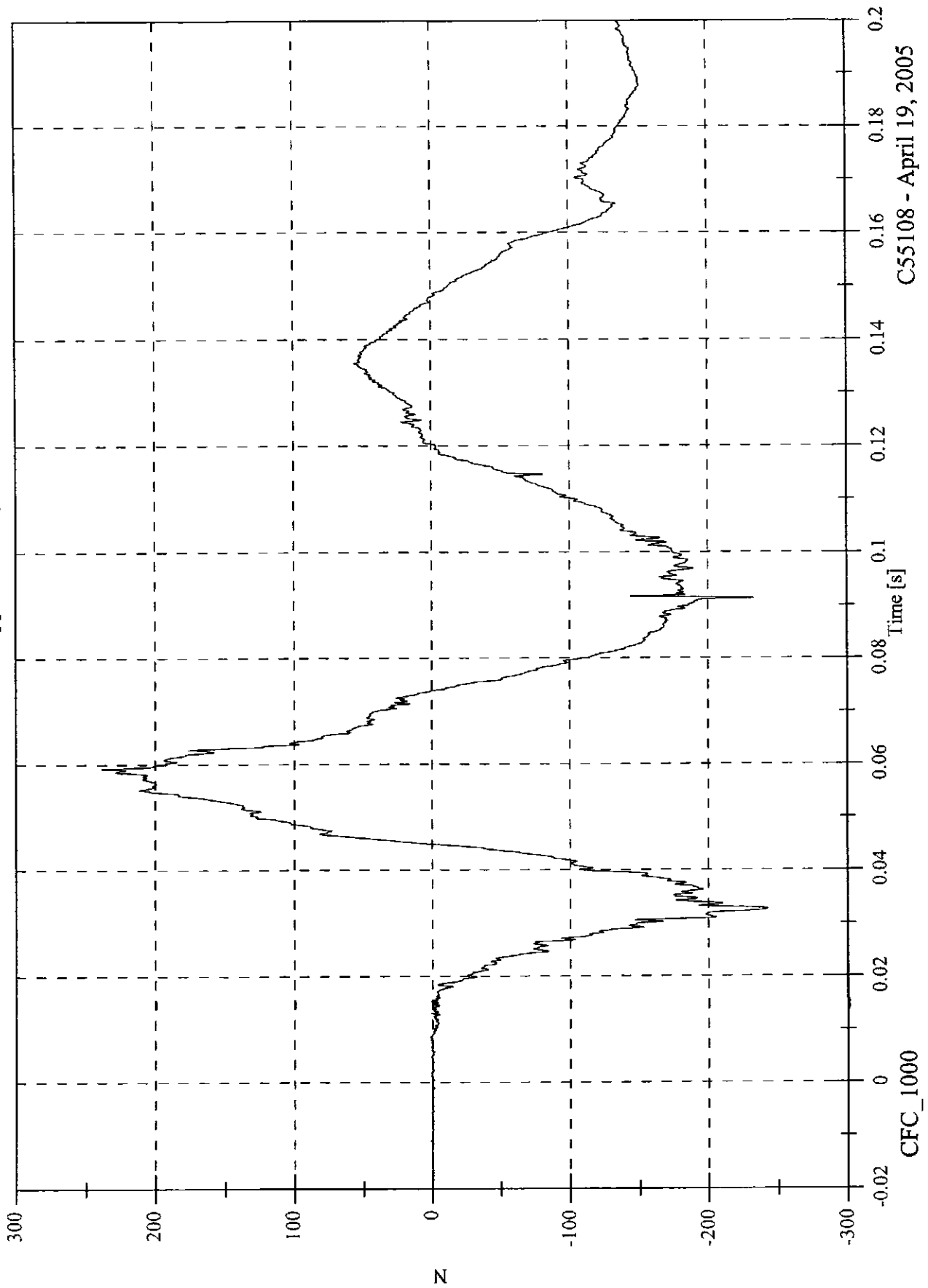


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Upper Neck Fy

Max: 238.7 [N] at 0.059 [s]
Min: -242.7 [N] at 0.033 [s]

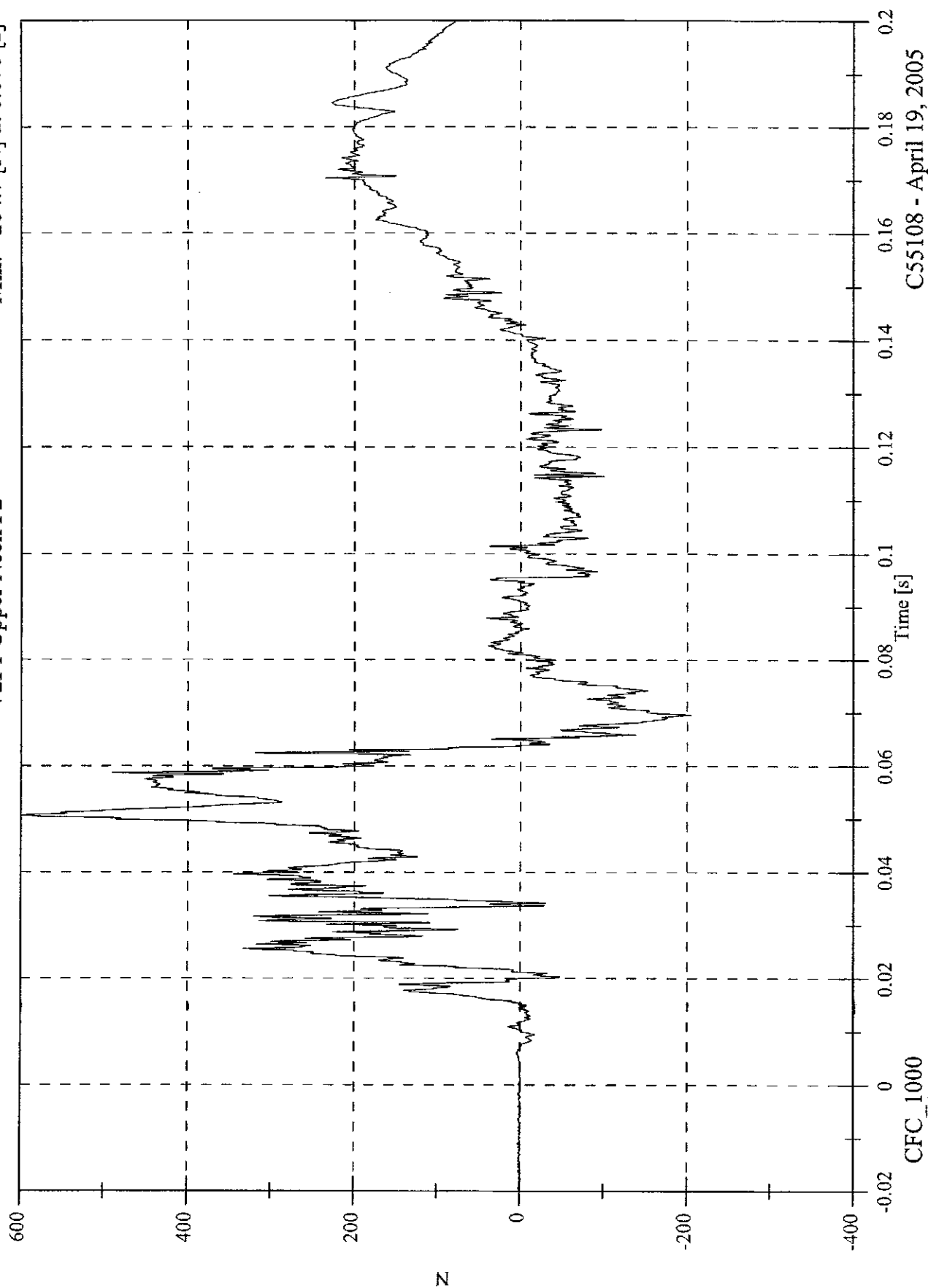


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2PI Upper Neck Fz

Max: 598.8 [N] at 0.051 [s]
Min: -204.7 [N] at 0.070 [s]

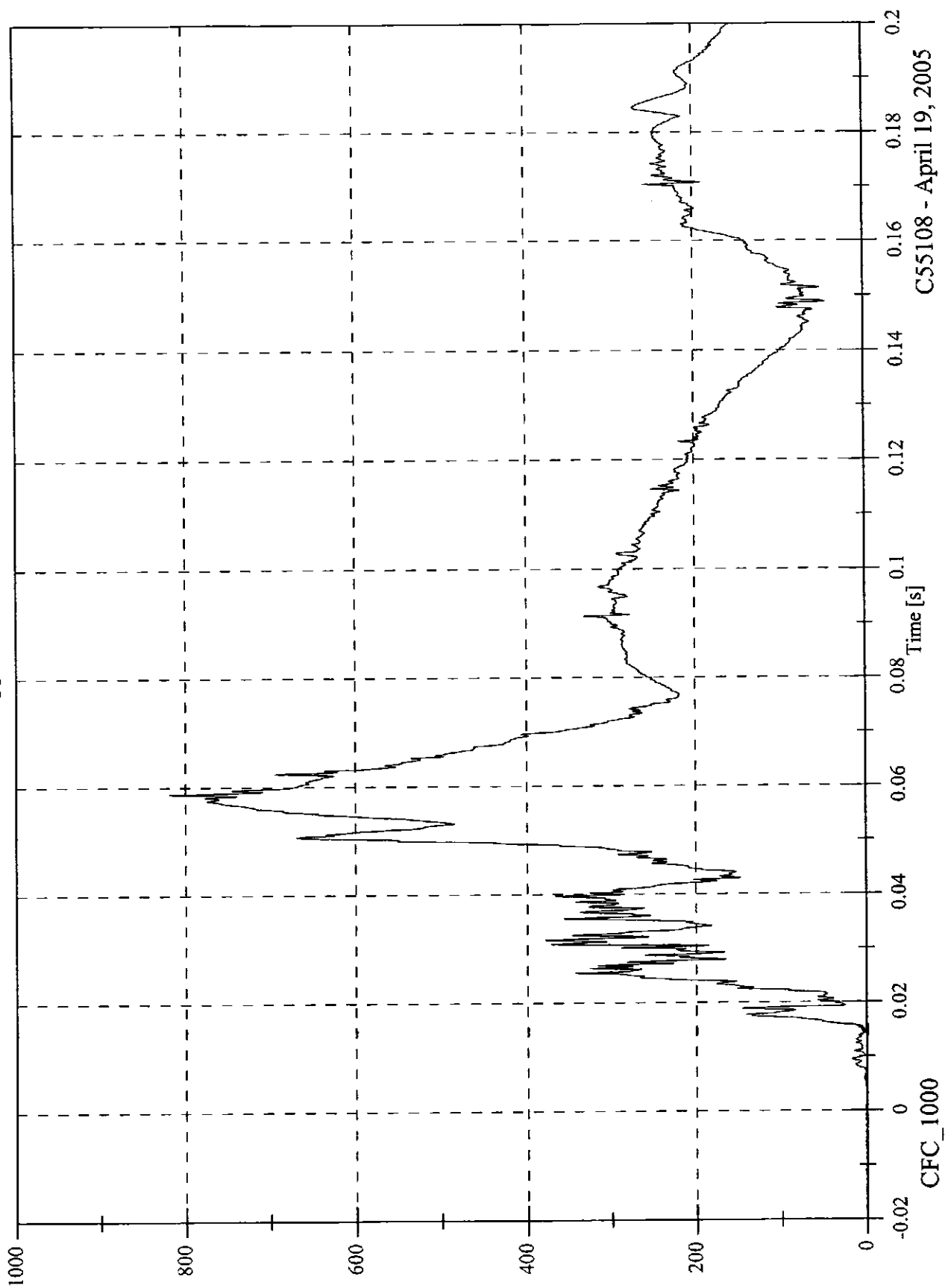


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Upper Neck F Resultant

Max: 818.6 [N] at 0.059 [s]
Min: 0.1 [N] at -0.008 [s]



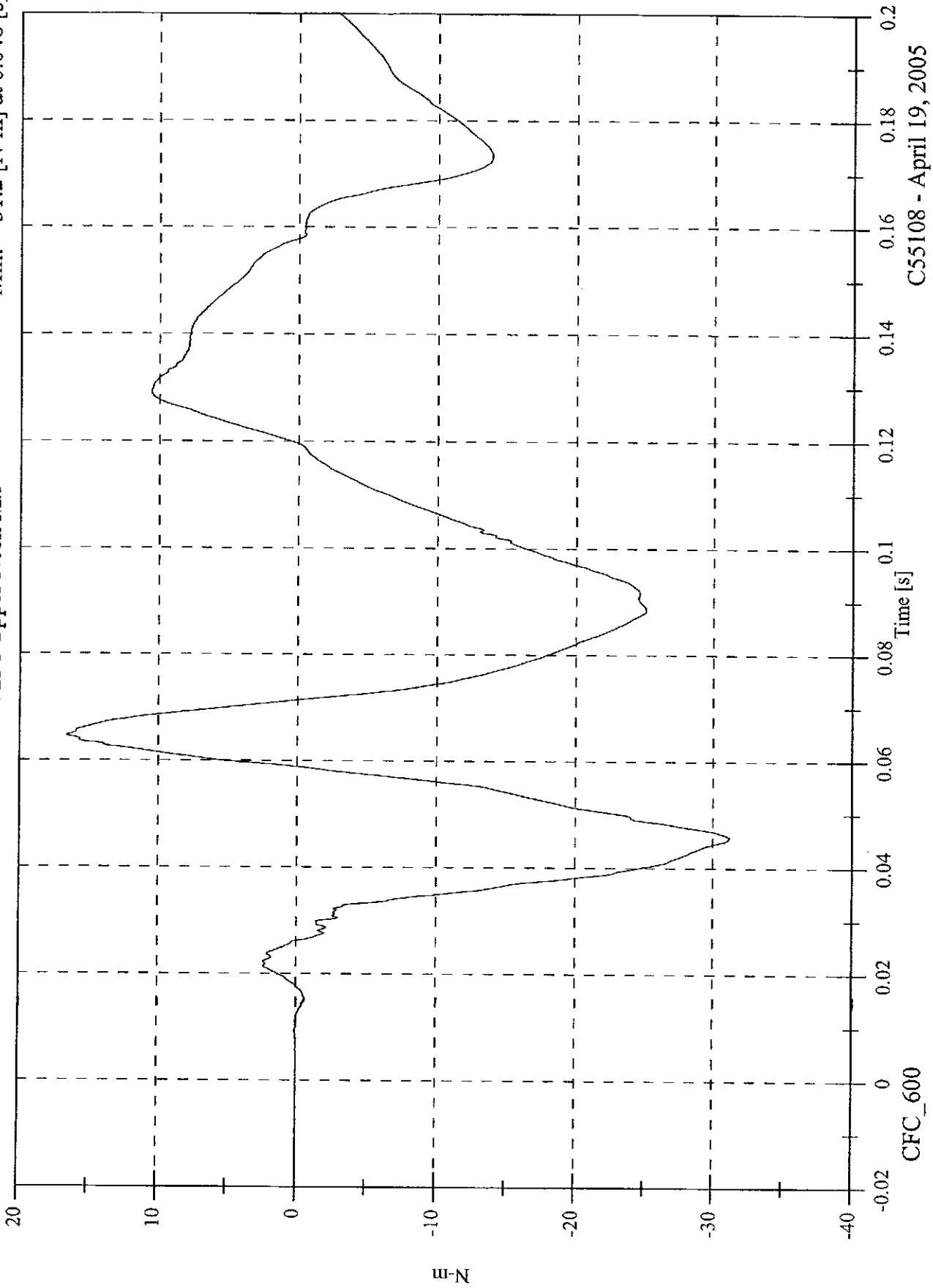
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 16.6 [N-m] at 0.065 [s]

Min: -31.2 [N-m] at 0.046 [s]

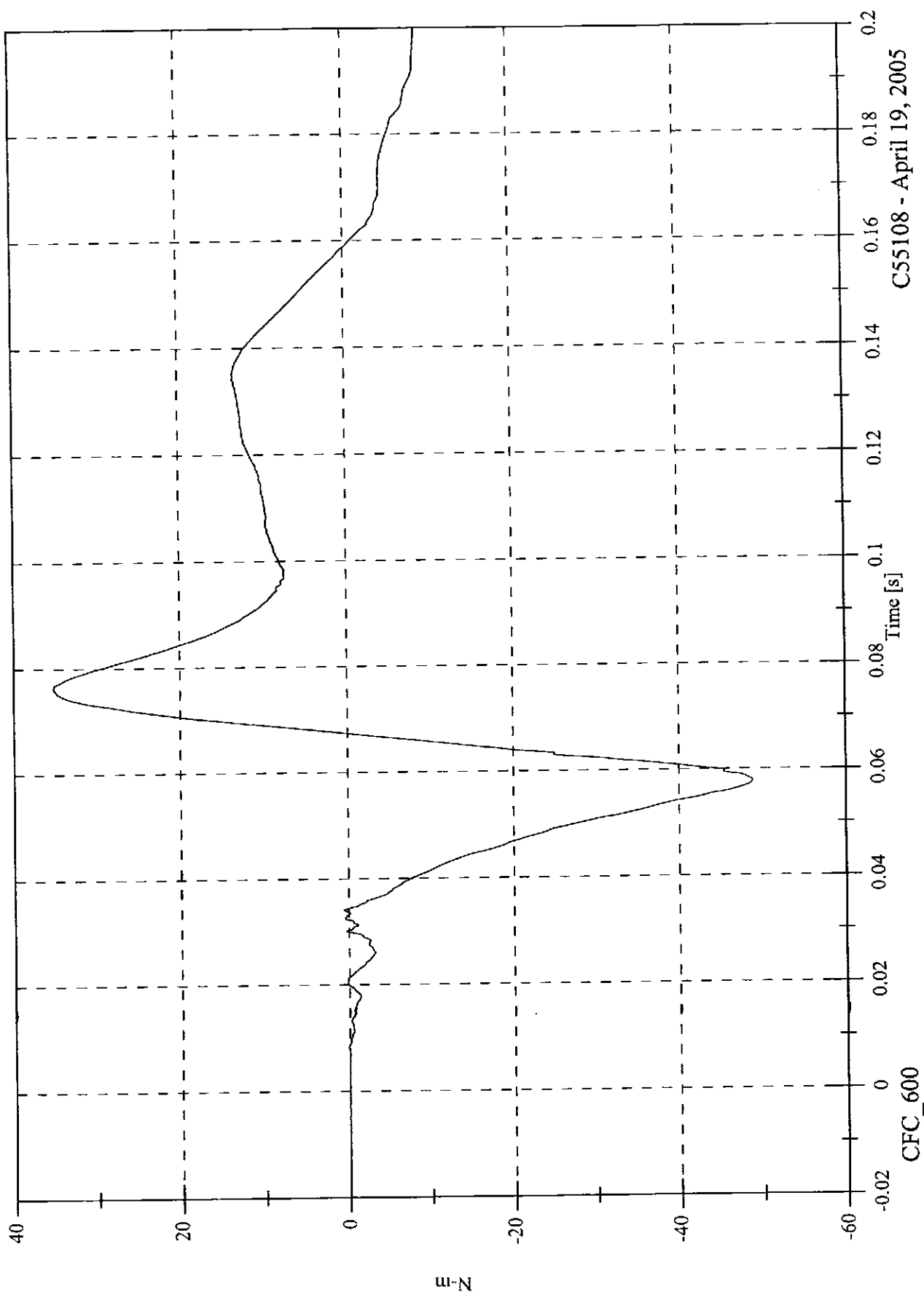
V2P1 Upper Neck Mx



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P1 Upper Neck My

Max: 35.2 [N-m] at 0.076 [s]
Min: -48.8 [N-m] at 0.058 [s]

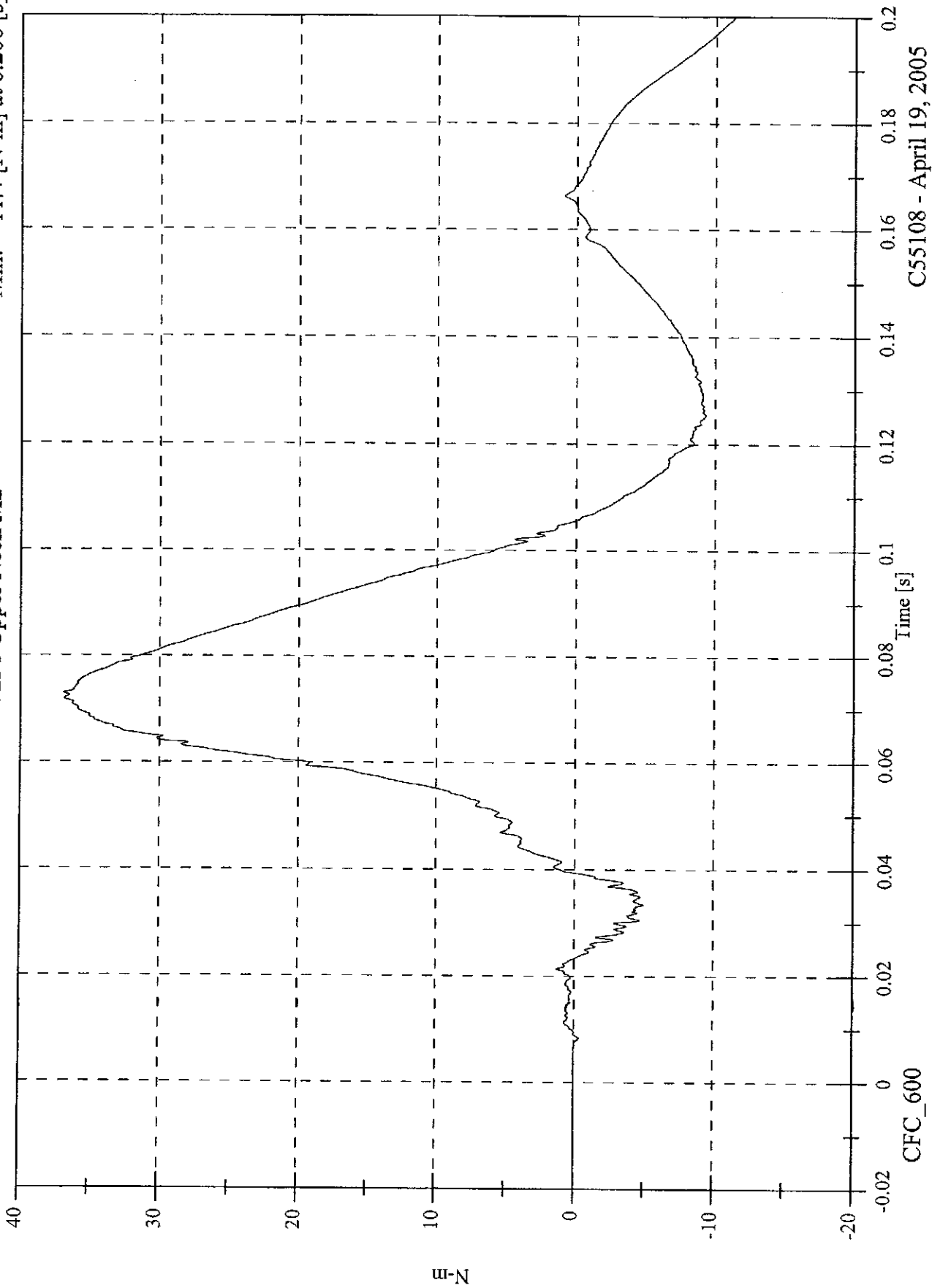


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Upper Neck Mz

Max: 36.9 [N-m] at 0.073 [s]
Min: -11.4 [N-m] at 0.200 [s]

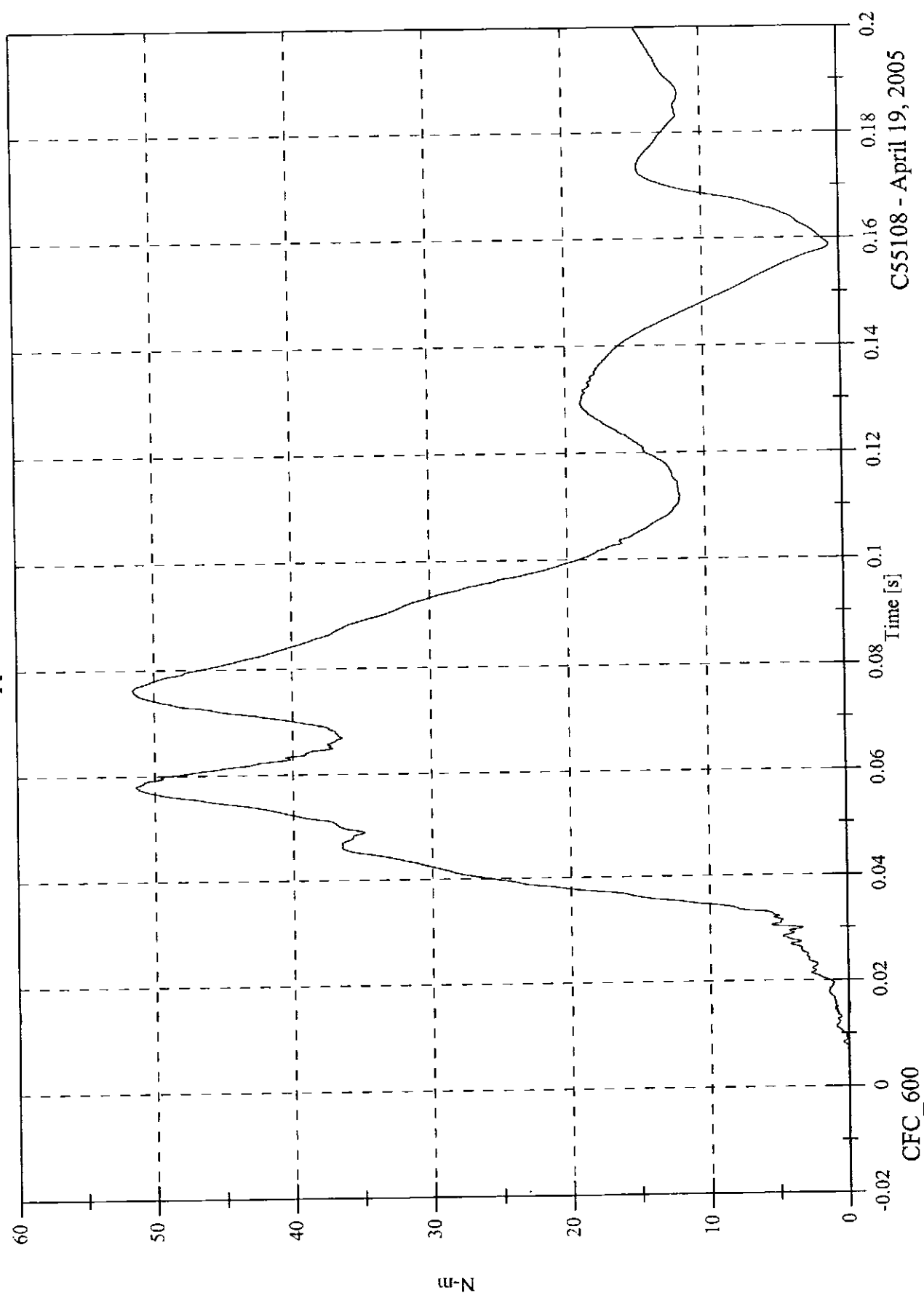


C55108 - April 19, 2005

Max: 51.5 [N-m] at 0.076 [s]
Min: 0.0 [N-m] at -0.014 [s]

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Upper Neck M Resultant

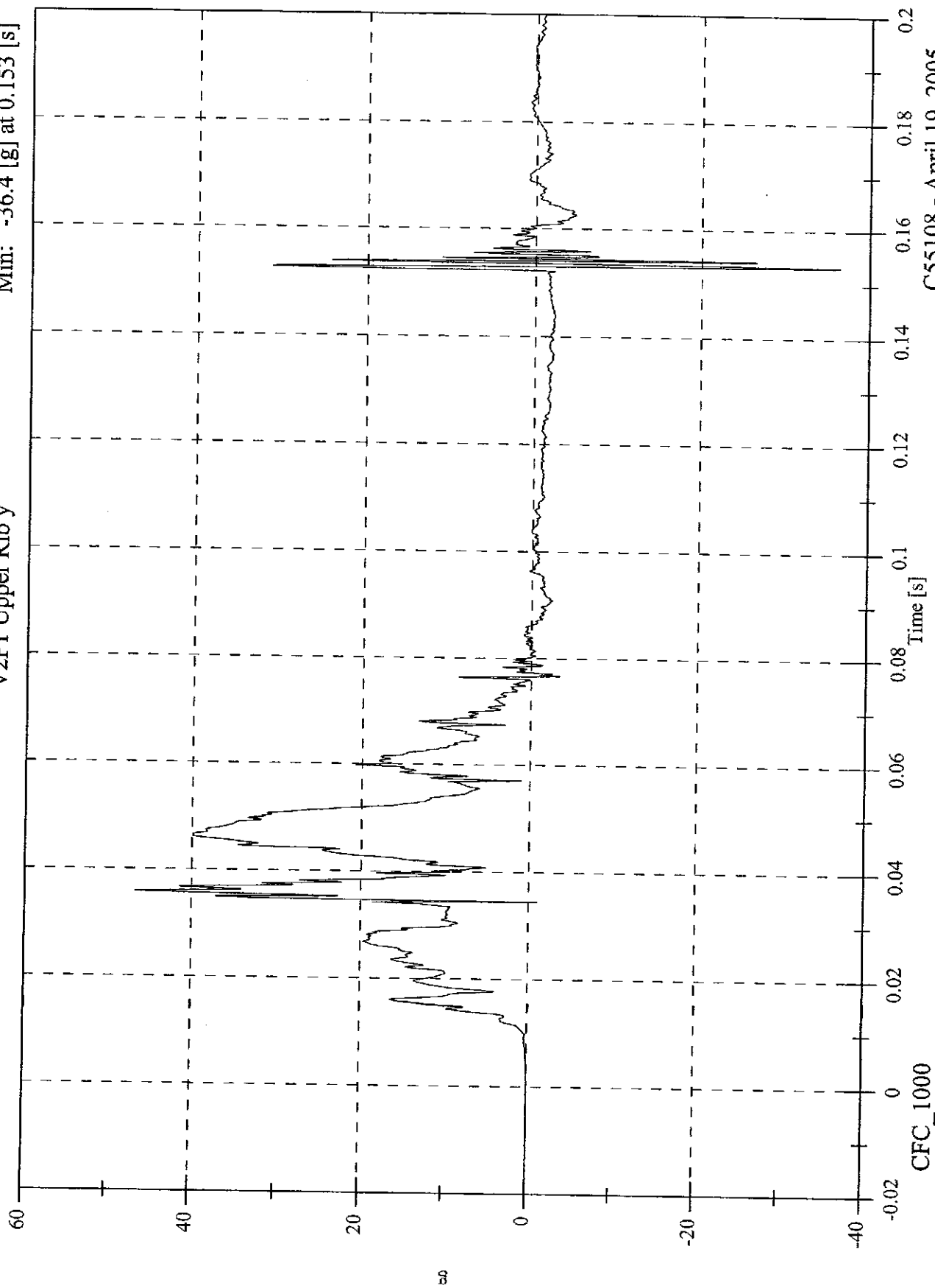


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Upper Rib y

Max: 46.6 [g] at 0.036 [s]
Min: -36.4 [g] at 0.153 [s]

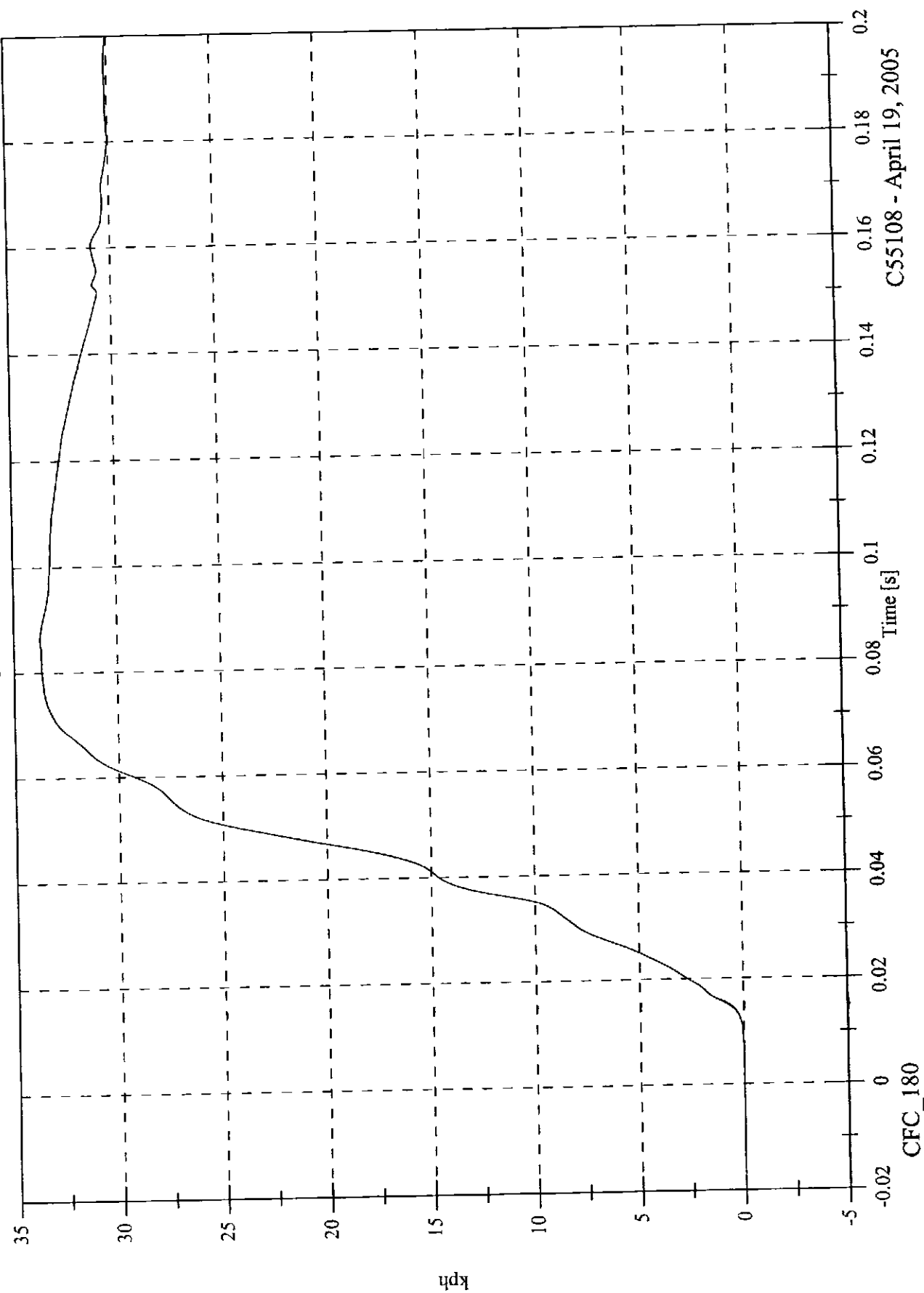


C55108 - April 19, 2005

Max: 33.7 [kph] at 0.086 [s]
Min: -0.0 [kph] at -0.017 [s]

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Upper Rib y Velocity

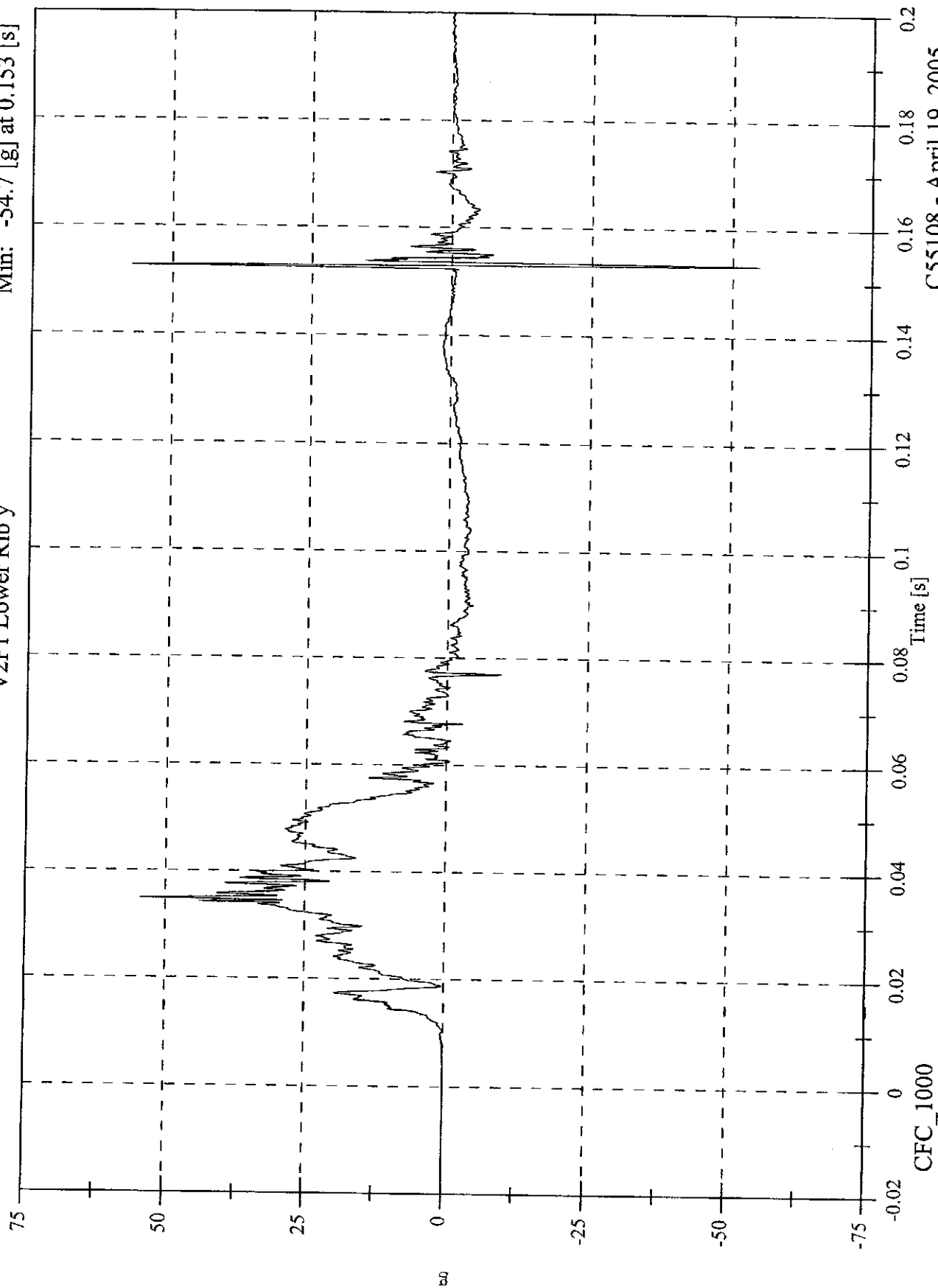


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Lower Rib y

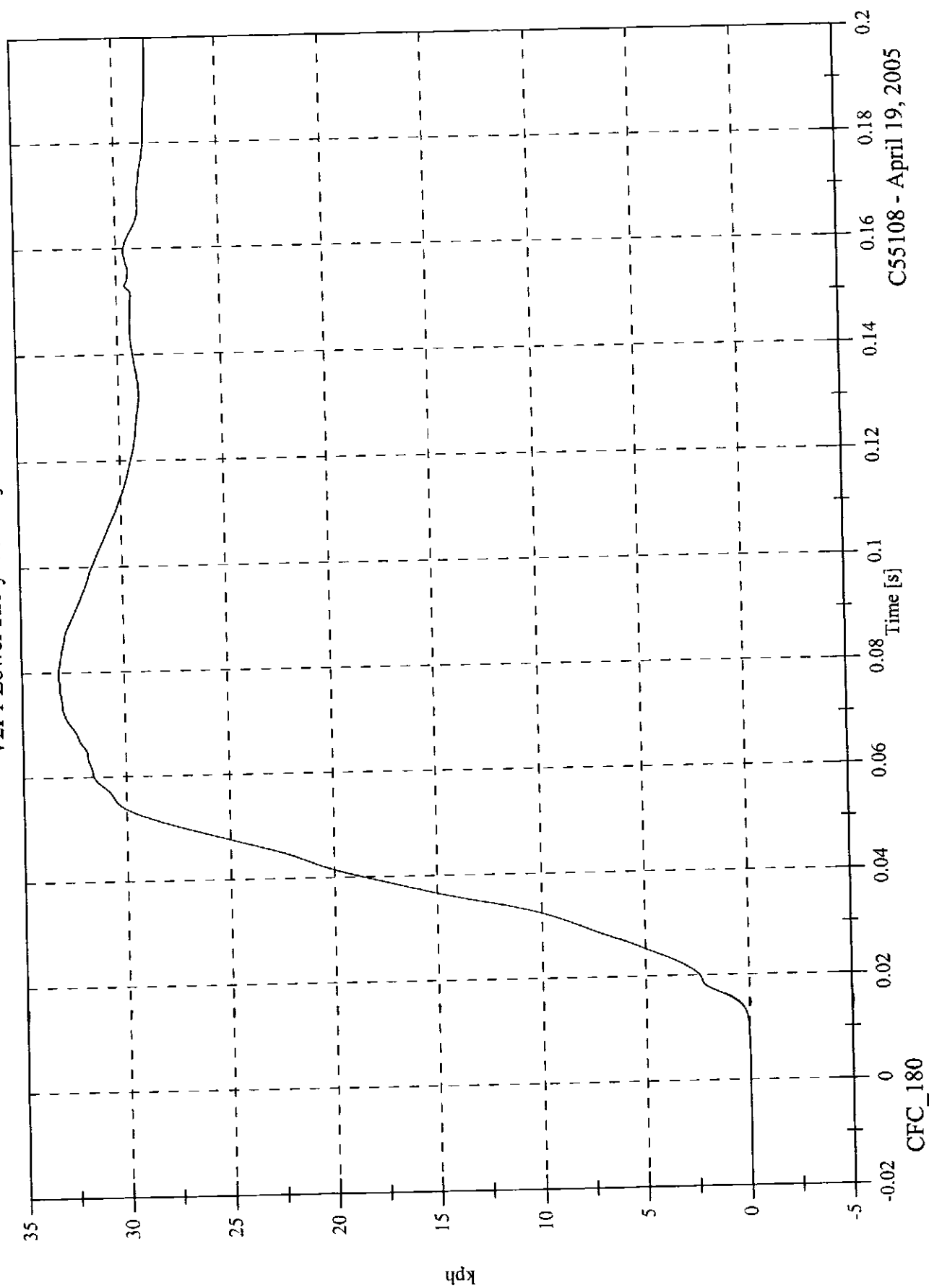
Max: 57.2 [g] at 0.153 [s]
Min: -54.7 [g] at 0.153 [s]



C55108 - April 19, 2005

Max: 33.2 [kph] at 0.079 [s]
Min: -0.0 [kph] at -0.013 [s]

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P1 Lower Rib y Velocity

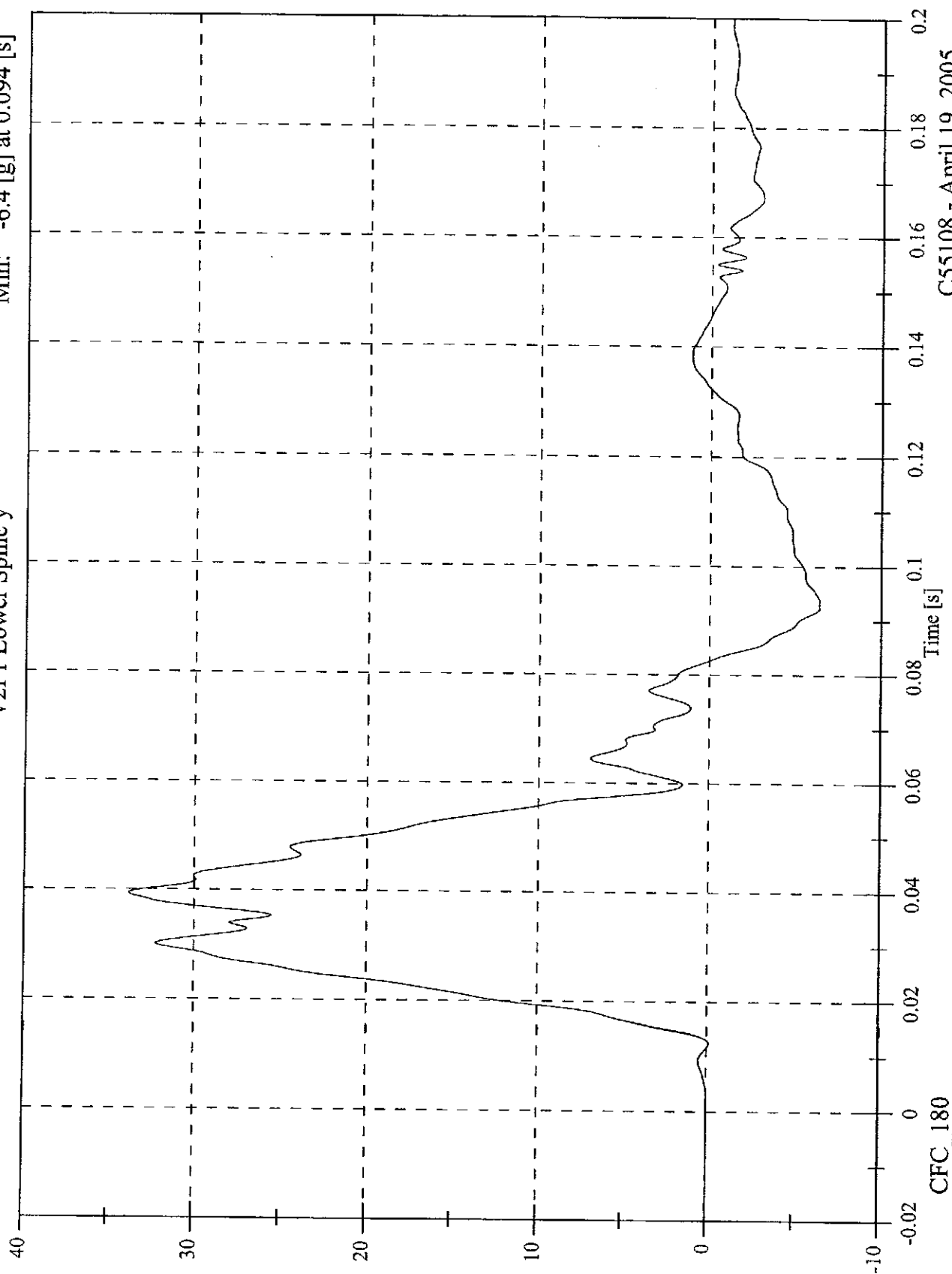


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Lower Spine y

Max: 33.8 [g] at 0.039 [s]
Min: -6.4 [g] at 0.094 [s]

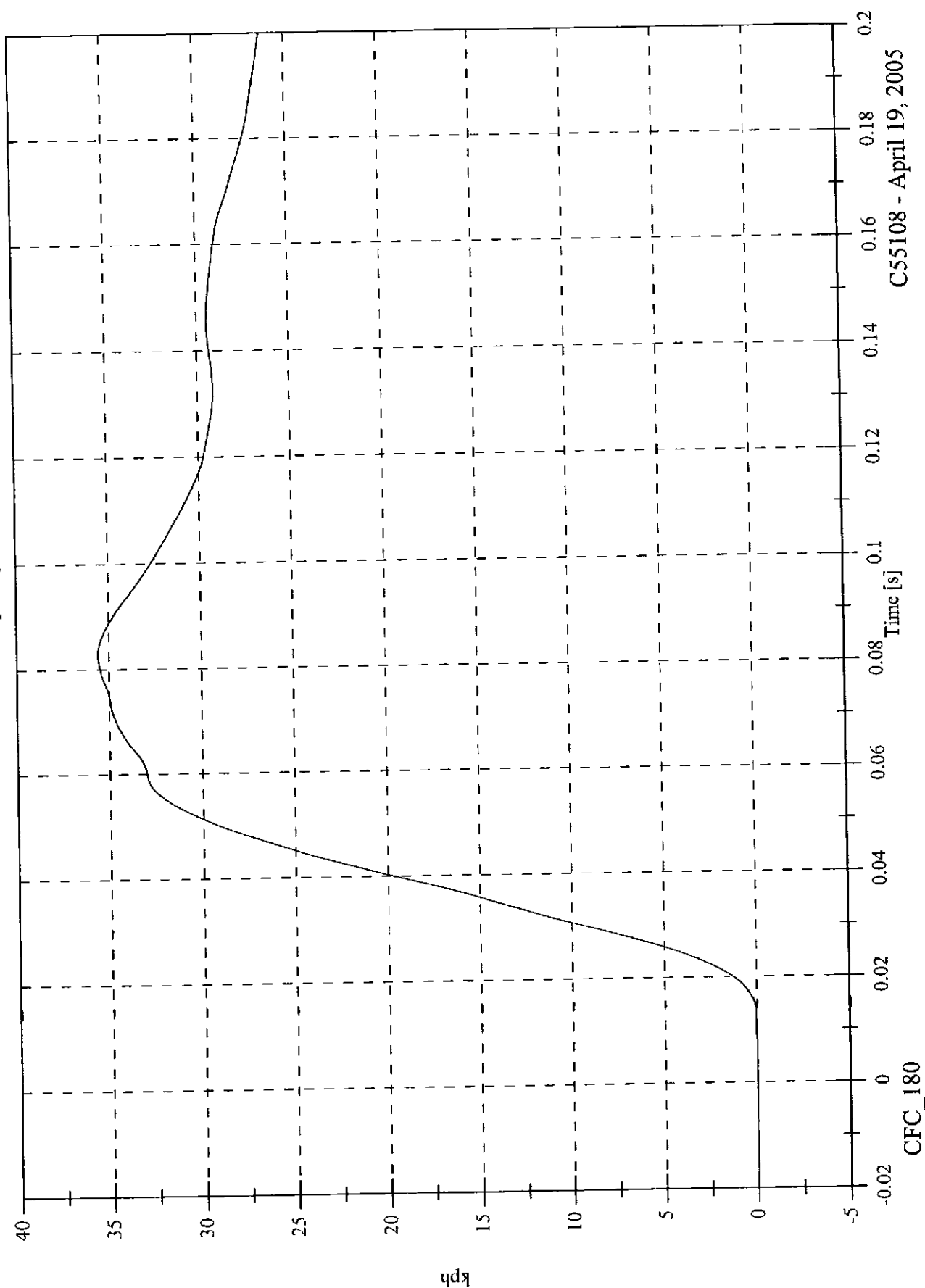


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Lower Spine y Velocity

Max: 35.6 [kph] at 0.083 [s]
Min: -0.0 [kph] at -0.019 [s]

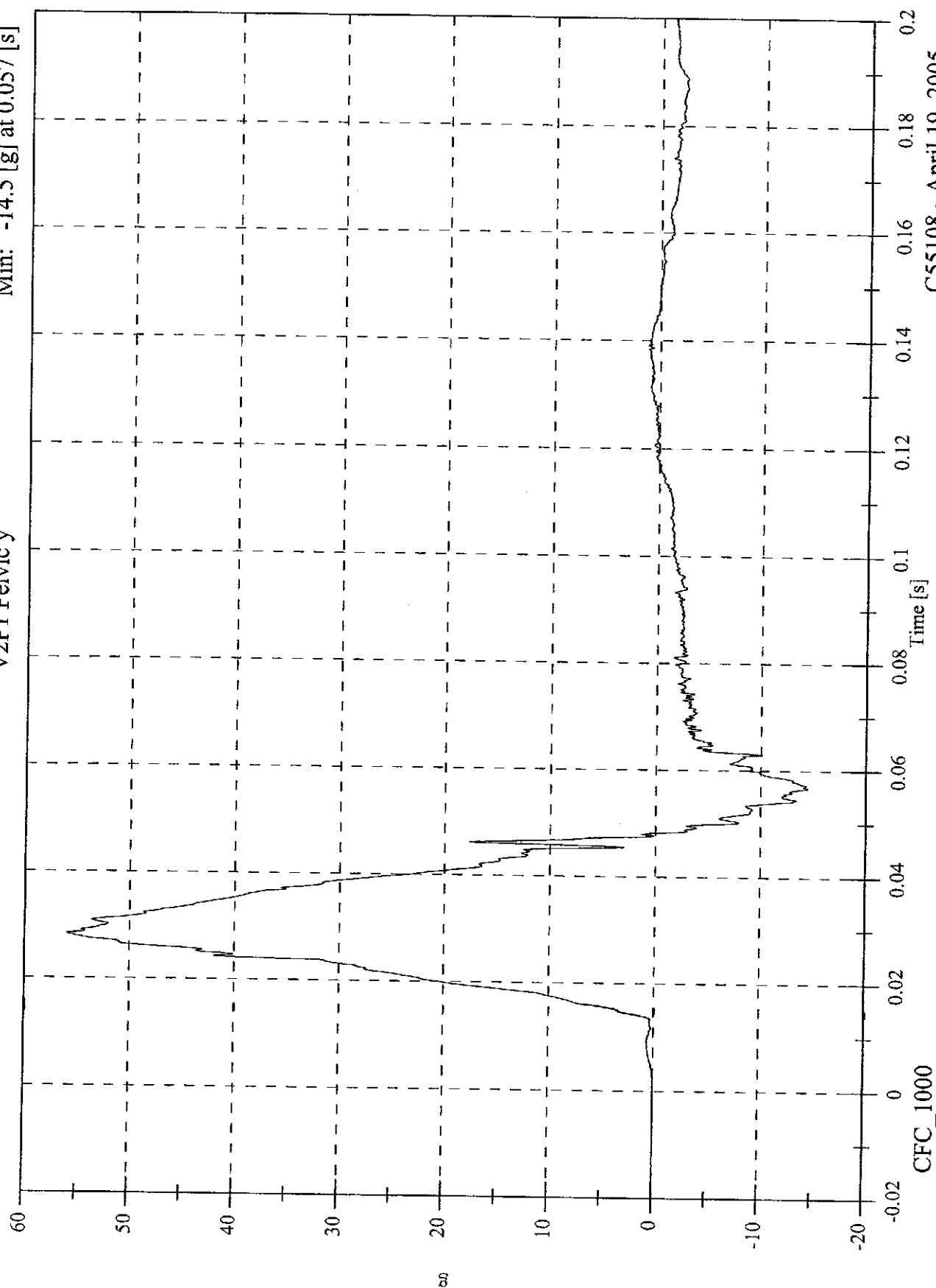


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Pelvic y

Max: 56.0 [g] at 0.028 [s]
Min: -14.5 [g] at 0.057 [s]

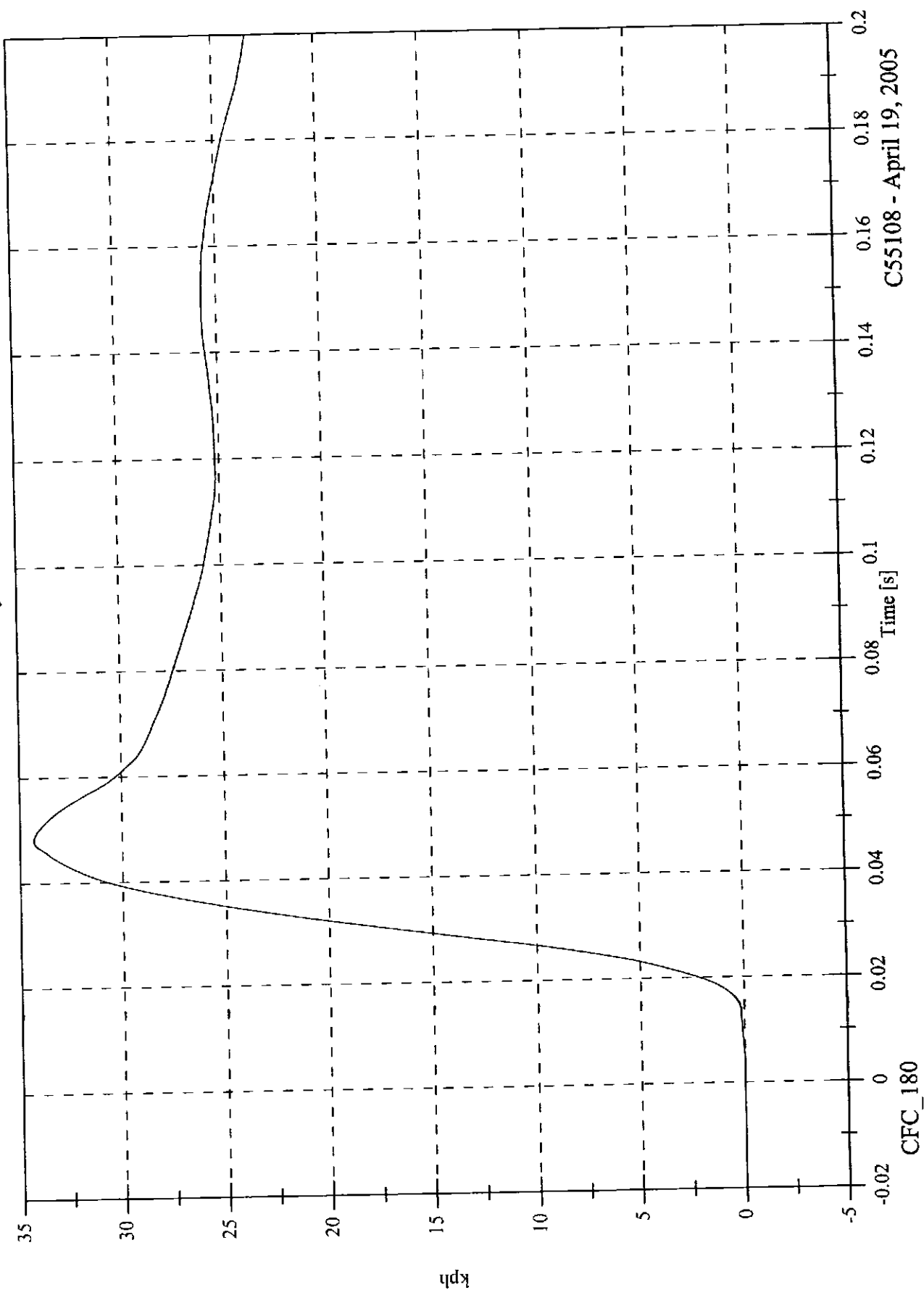


C55108 - April 19, 2005

Max: 34.3 [kph] at 0.048 [s]
Min: -0.0 [kph] at -0.019 [s]

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Pelvic y Velocity



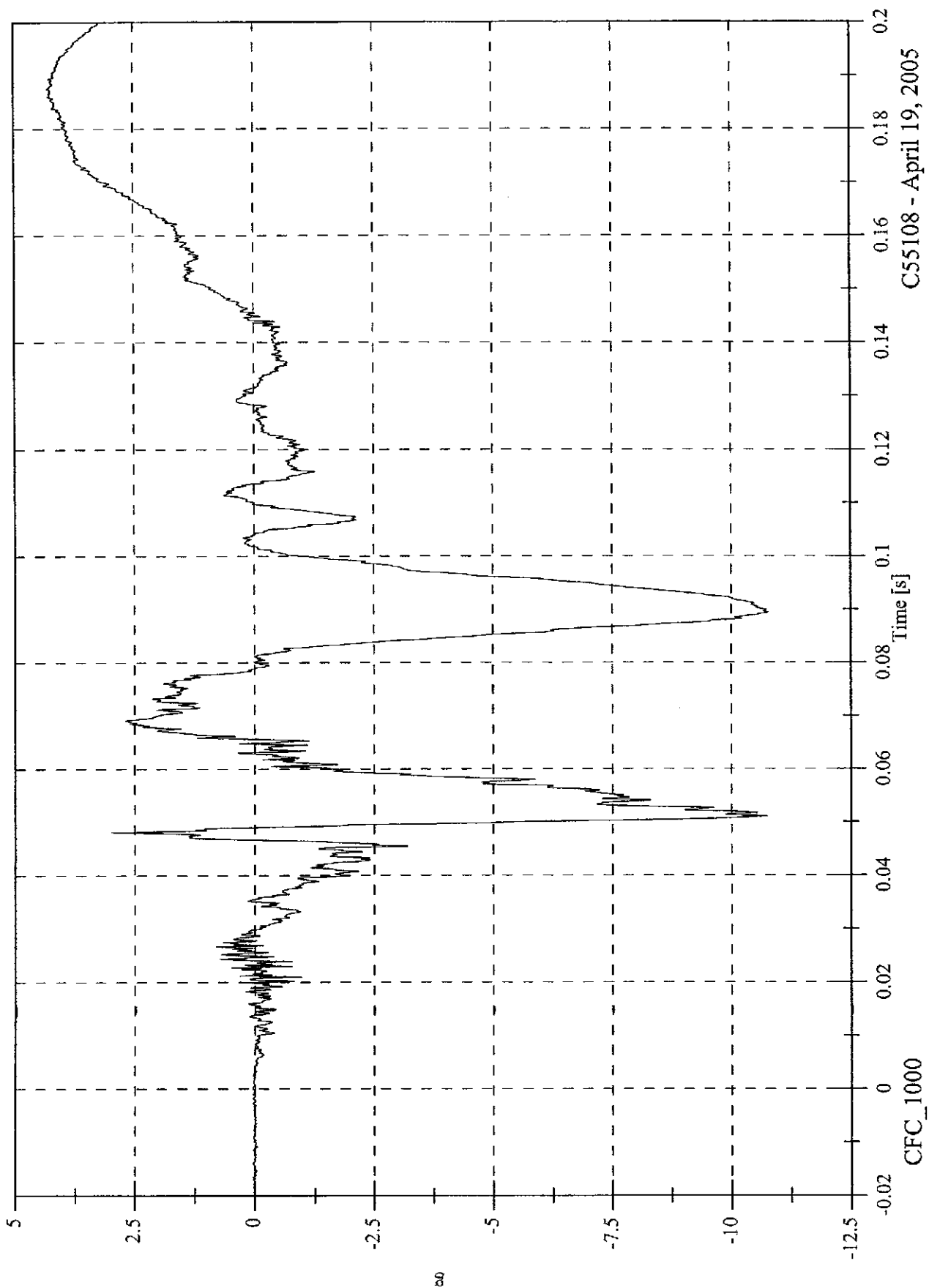
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 4.3 [g] at 0.188 [s]

Min: -10.8 [g] at 0.089 [s]

V2P4 Head x

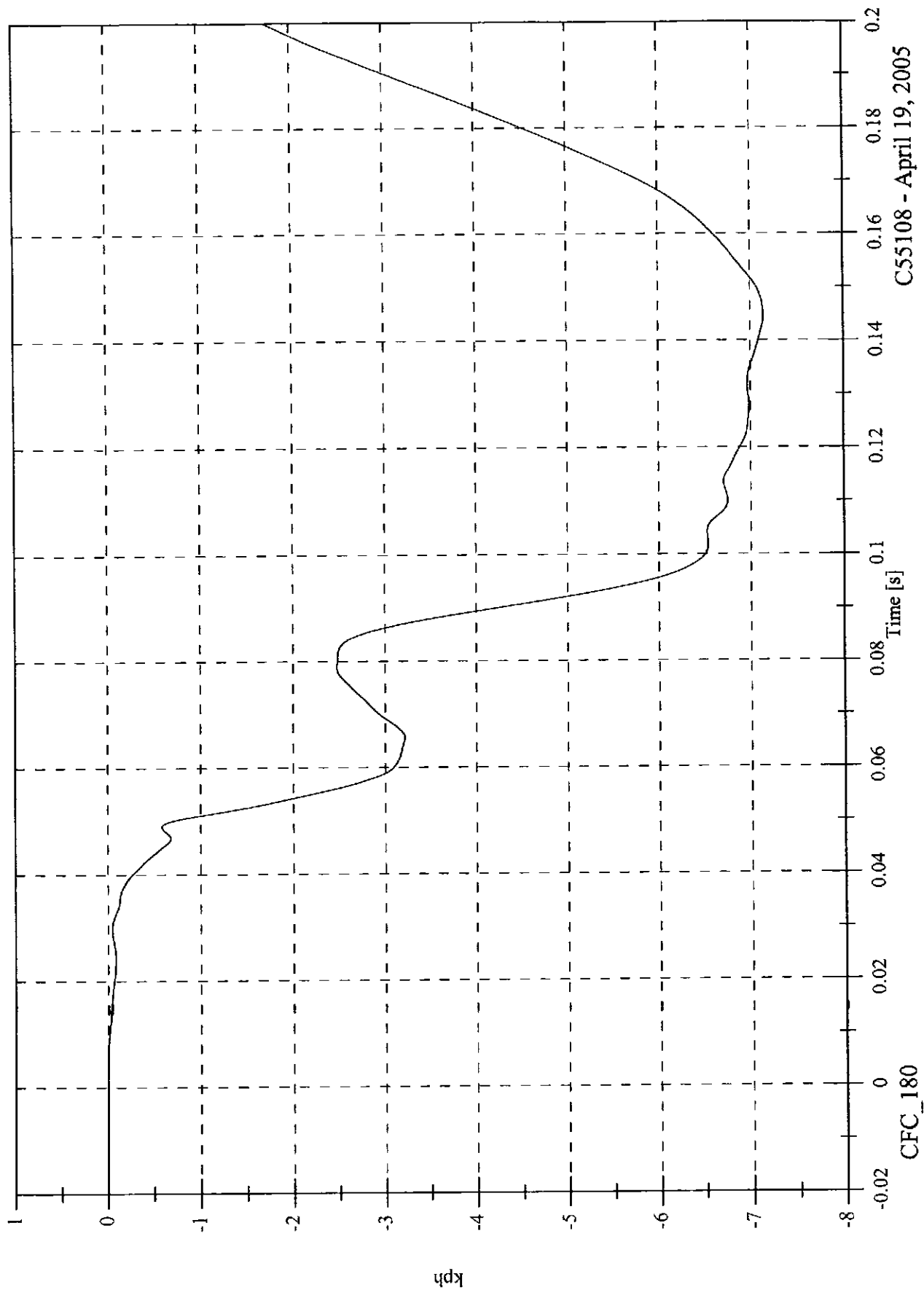


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P4 Head x Velocity

Max: 0.0 [kph] at 0.003 [s]
Min: -7.1 [kph] at 0.144 [s]



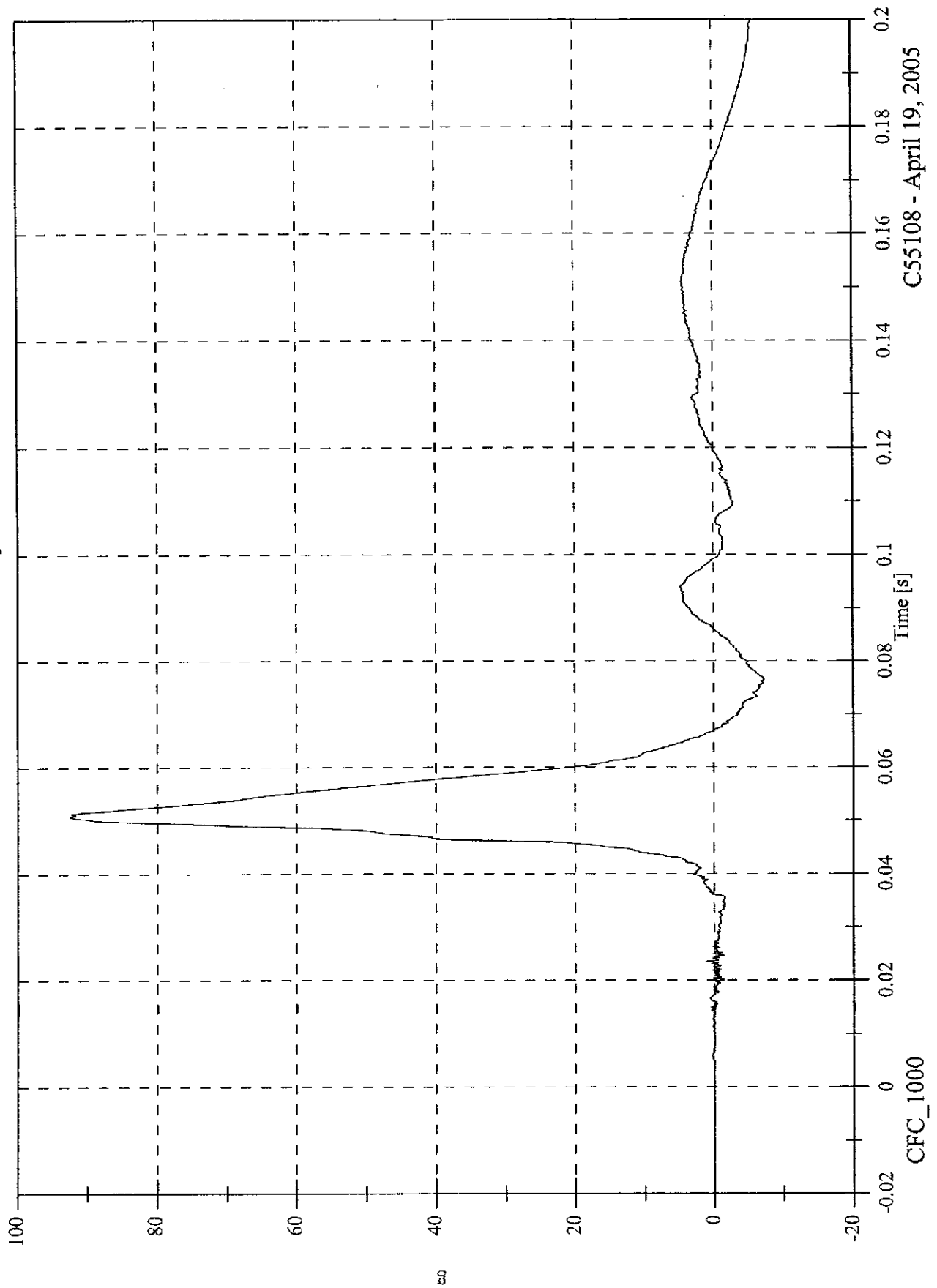
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Head y

Max: 92.5 [g] at 0.051 [s]

Min: -7.2 [g] at 0.076 [s]

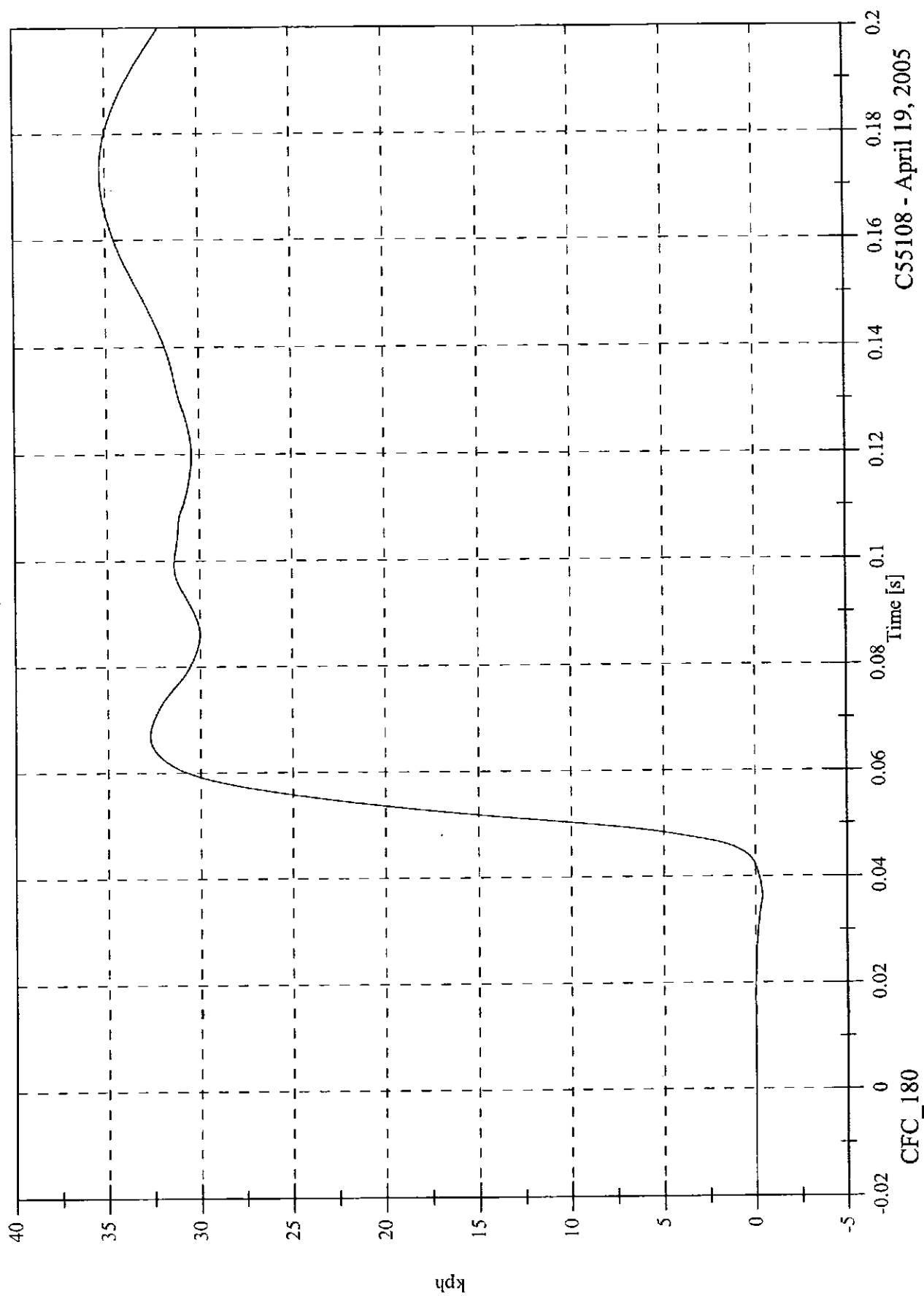


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Head y Velocity

Max: 35.3 [kph] at 0.173 [s]
Min: -0.4 [kph] at 0.036 [s]

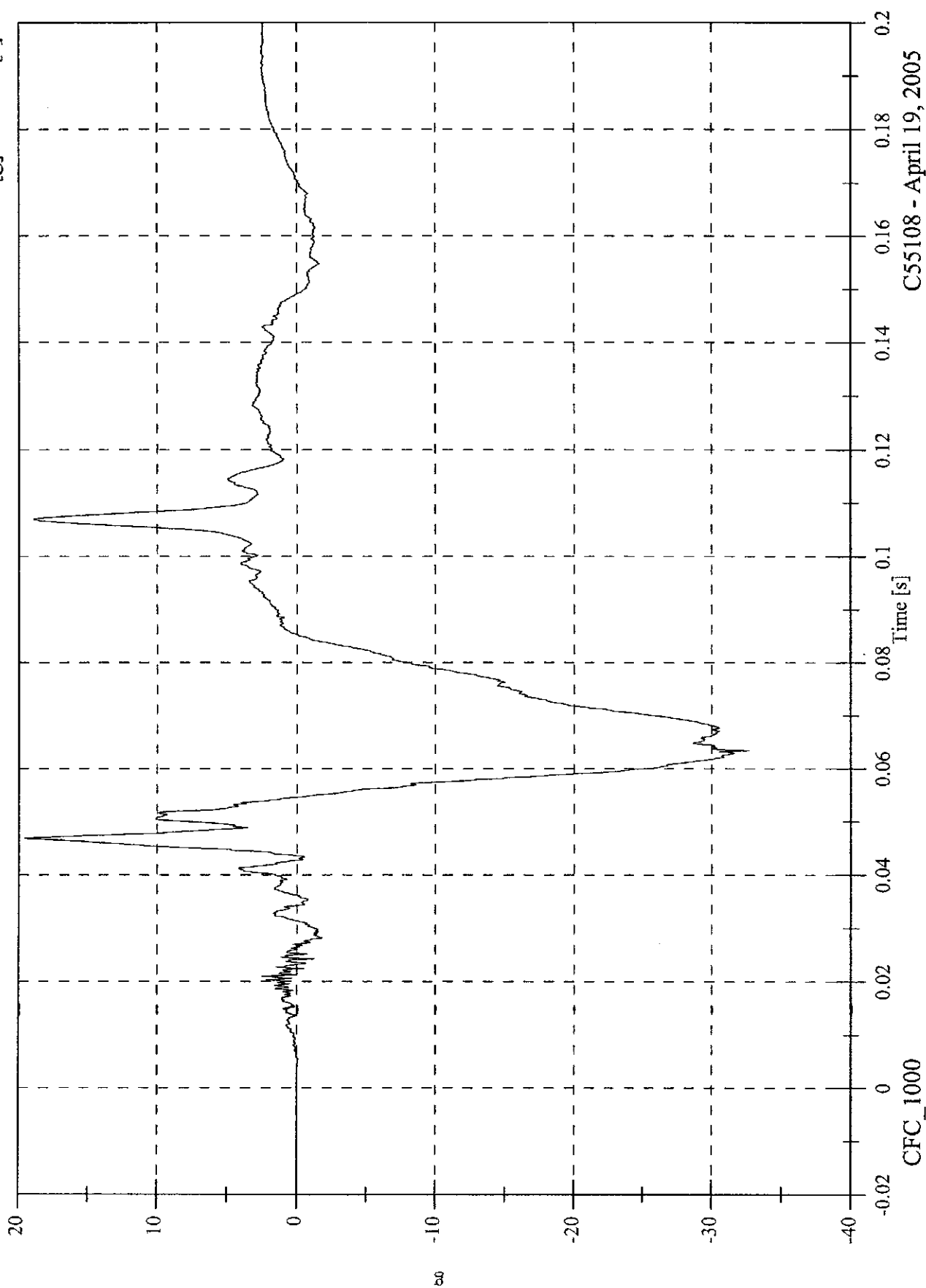


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Head z

Max: 19.6 [g] at 0.047 [s]
Min: -32.7 [g] at 0.063 [s]

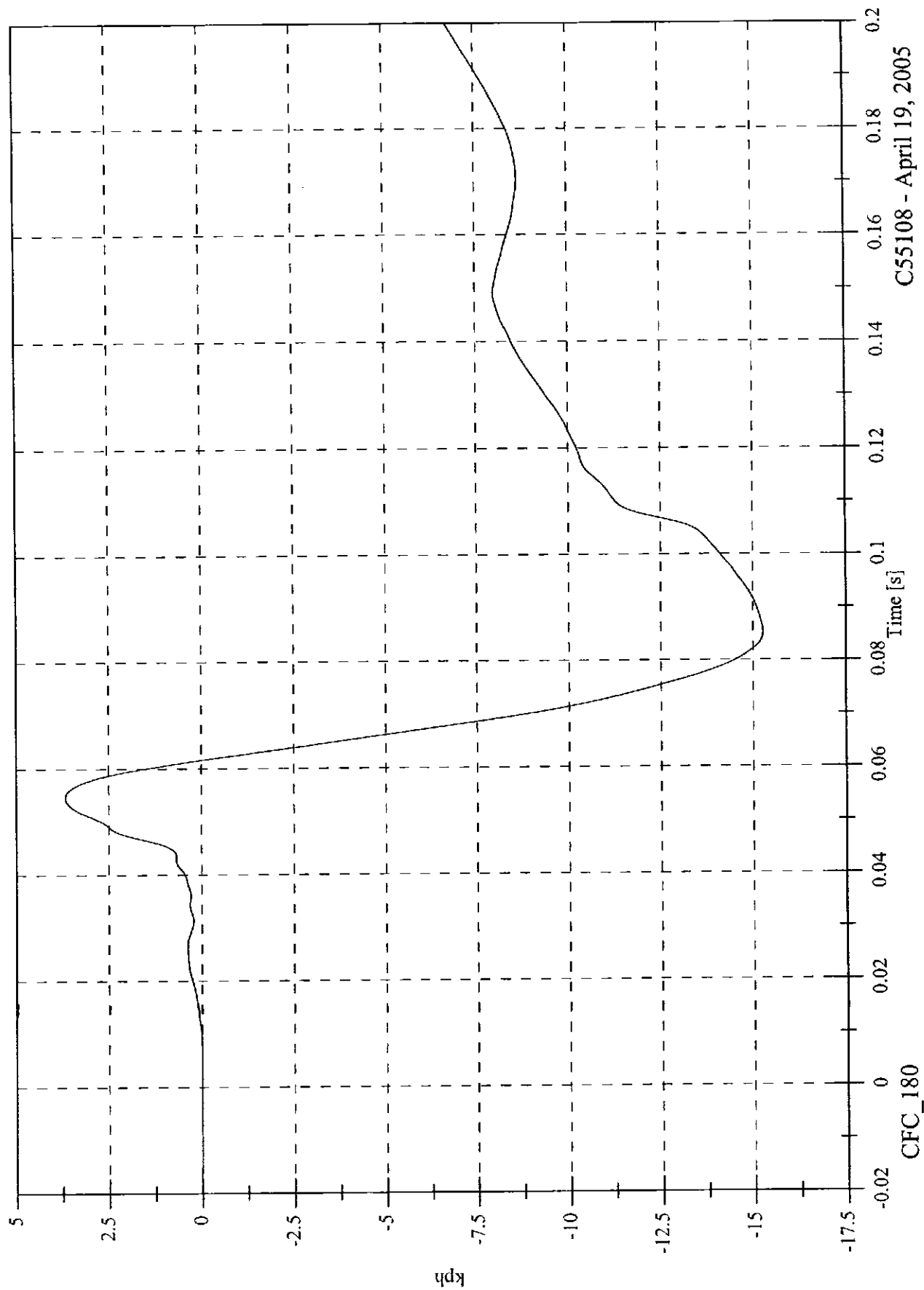


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 3.7 [kph] at 0.055 [s]
Min: -15.3 [kph] at 0.085 [s]

V2P4 Head z Velocity



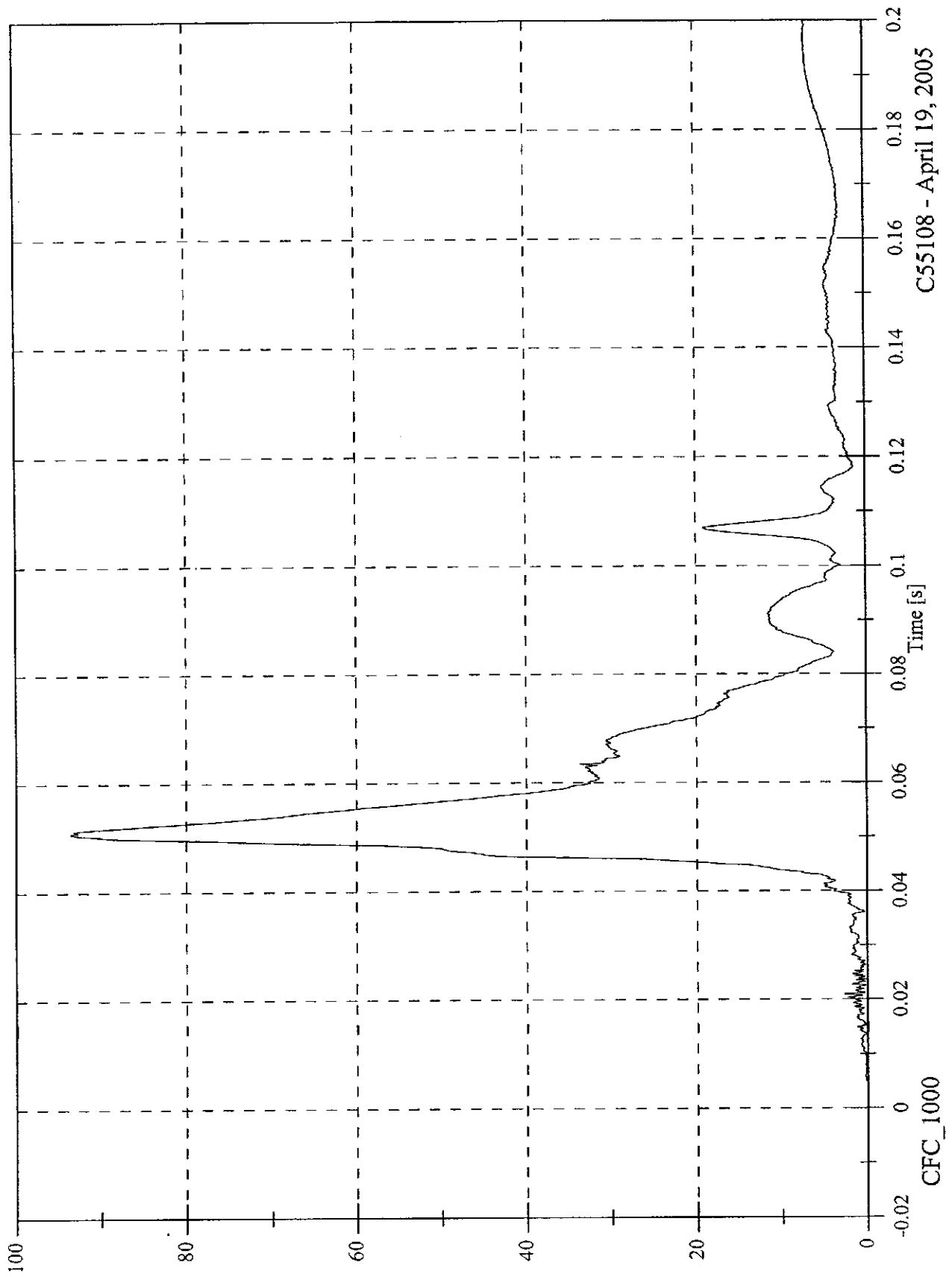
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P4 Head Resultant

Max: 93.6 [g] at 0.051 [s]

Min: 0.0 [g] at 0.001 [s]



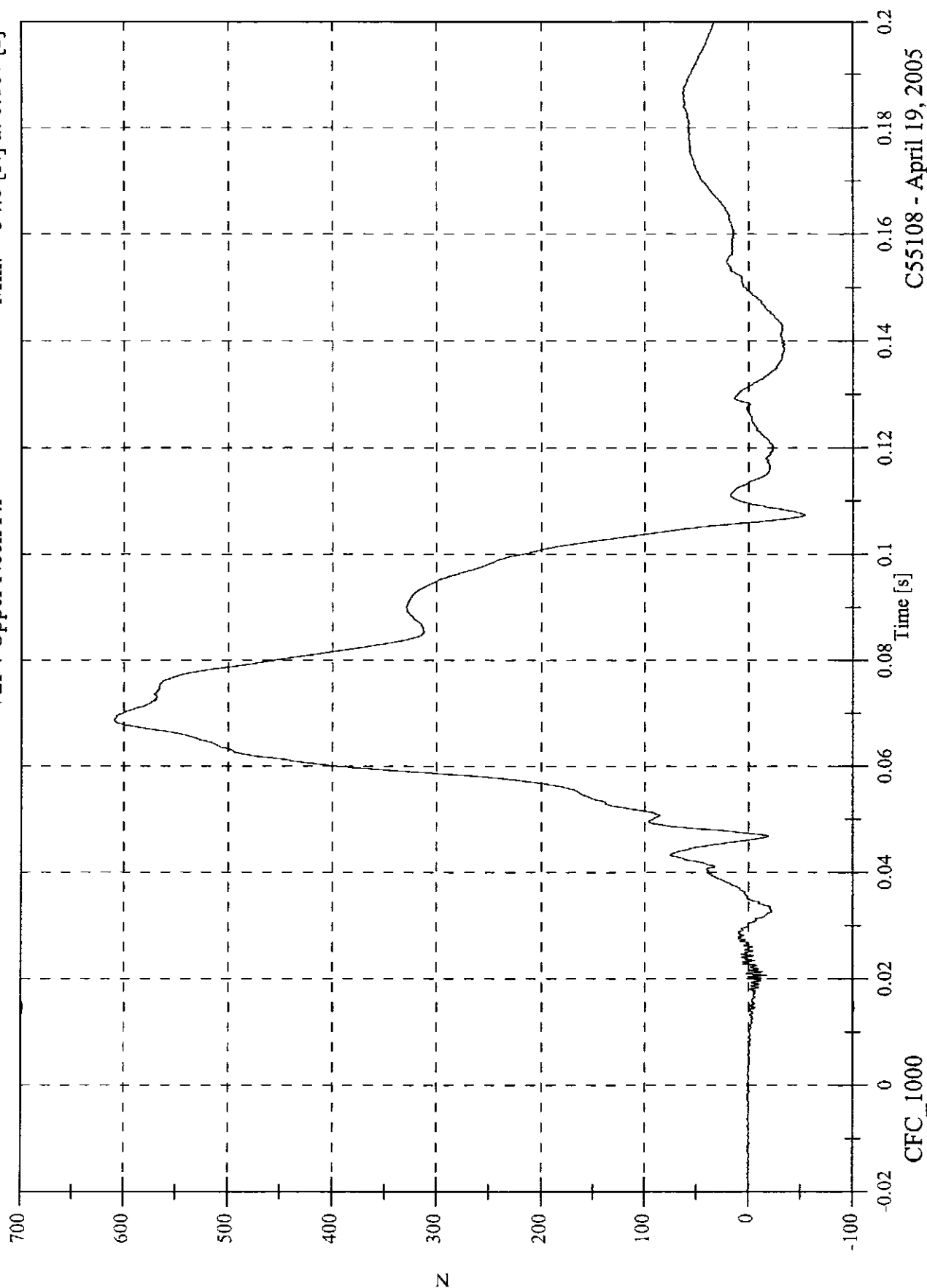
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 609.8 [N] at 0.069 [s]

Min: -54.0 [N] at 0.107 [s]

V2P4 Upper Neck Fx

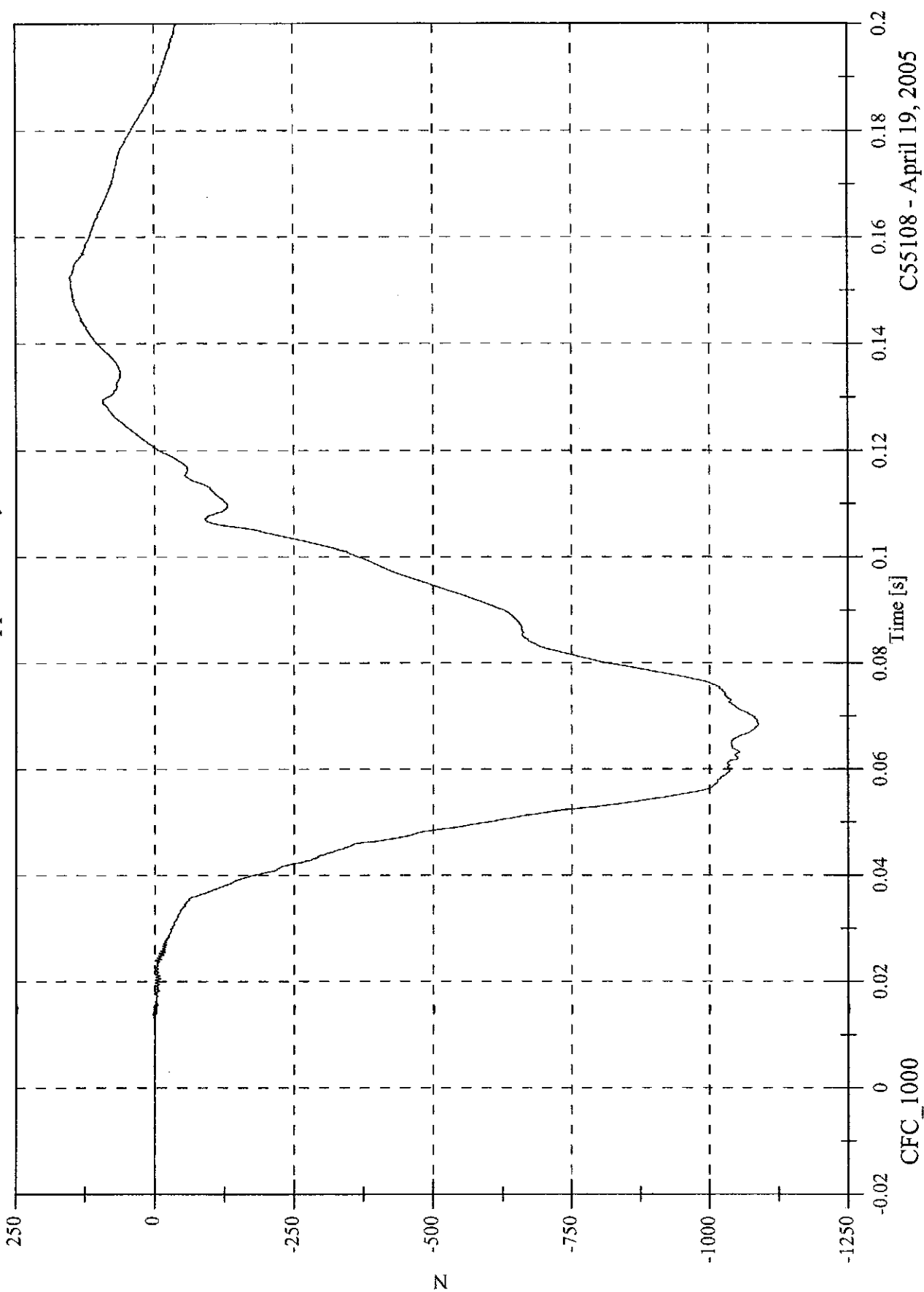


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Upper Neck Fy

Max: 152.4 [N] at 0.152 [s]
Min: -1088.2 [N] at 0.068 [s]

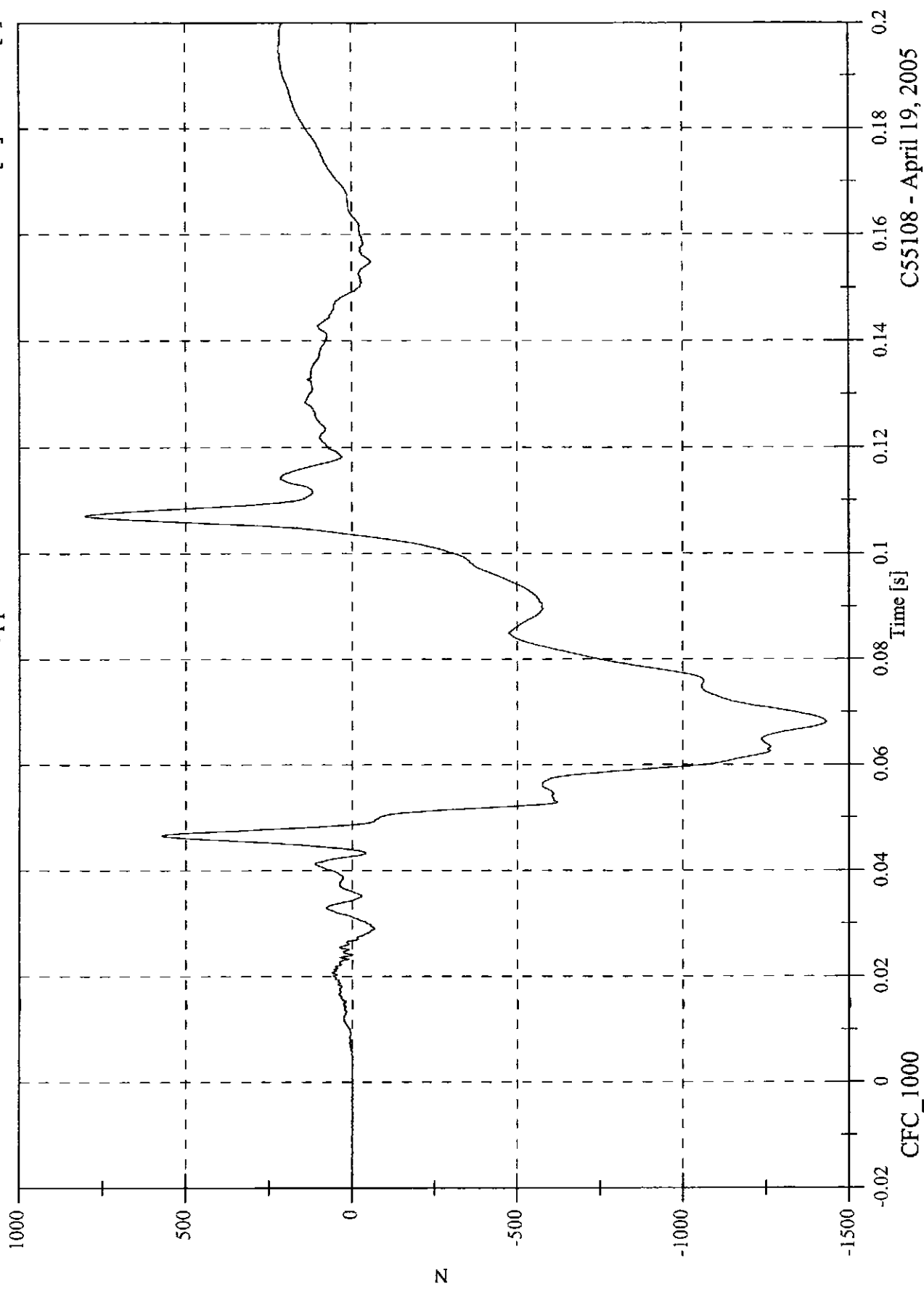


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 803.4 [N] at 0.107 [s]
Min: -1432.9 [N] at 0.068 [s]

V2P4 Upper Neck Fz



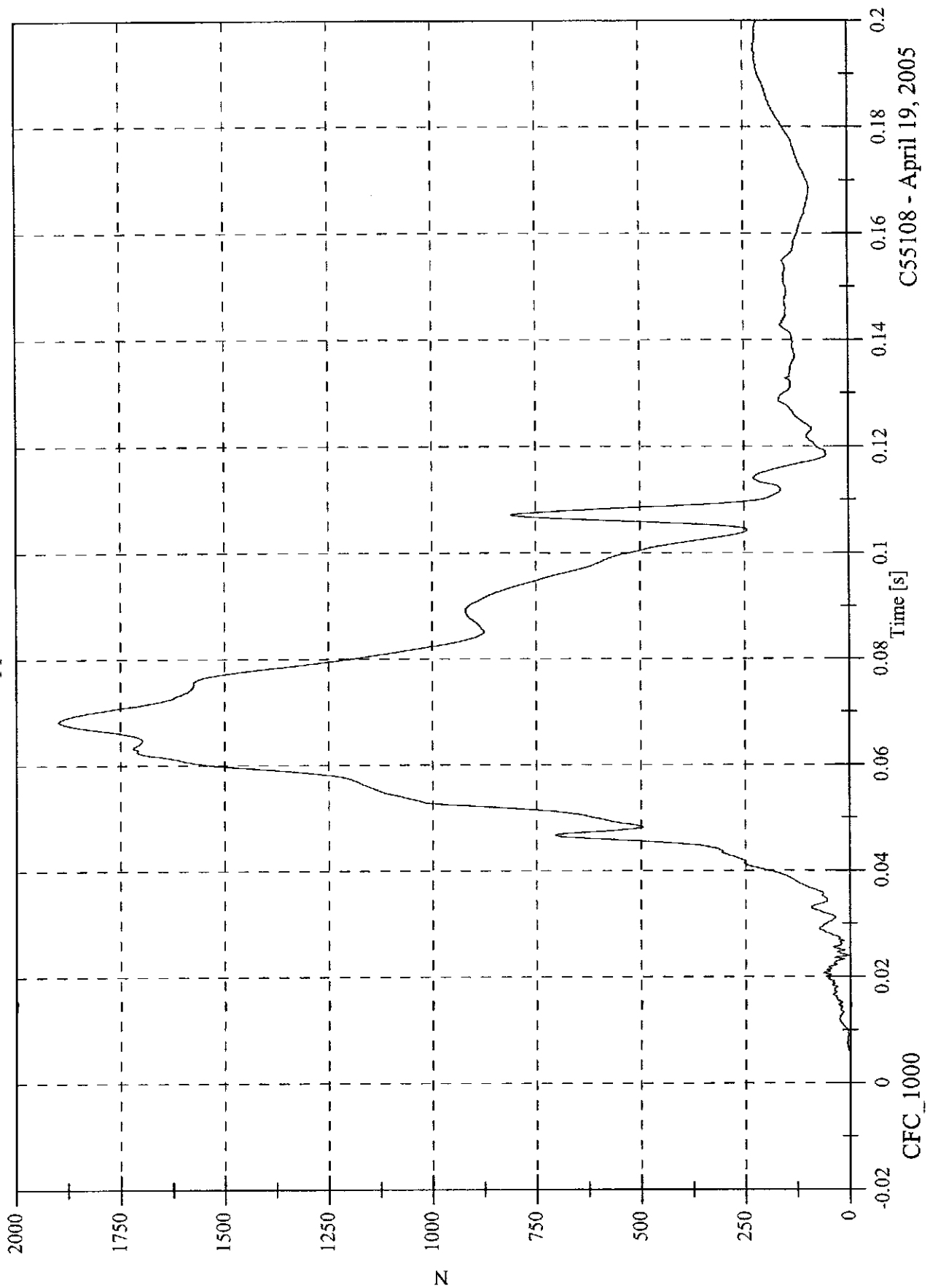
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 1898.2 [N] at 0.068 [s]

V2P4 Upper Neck F Resultant

Min: 0.1 [N] at -0.000 [s]

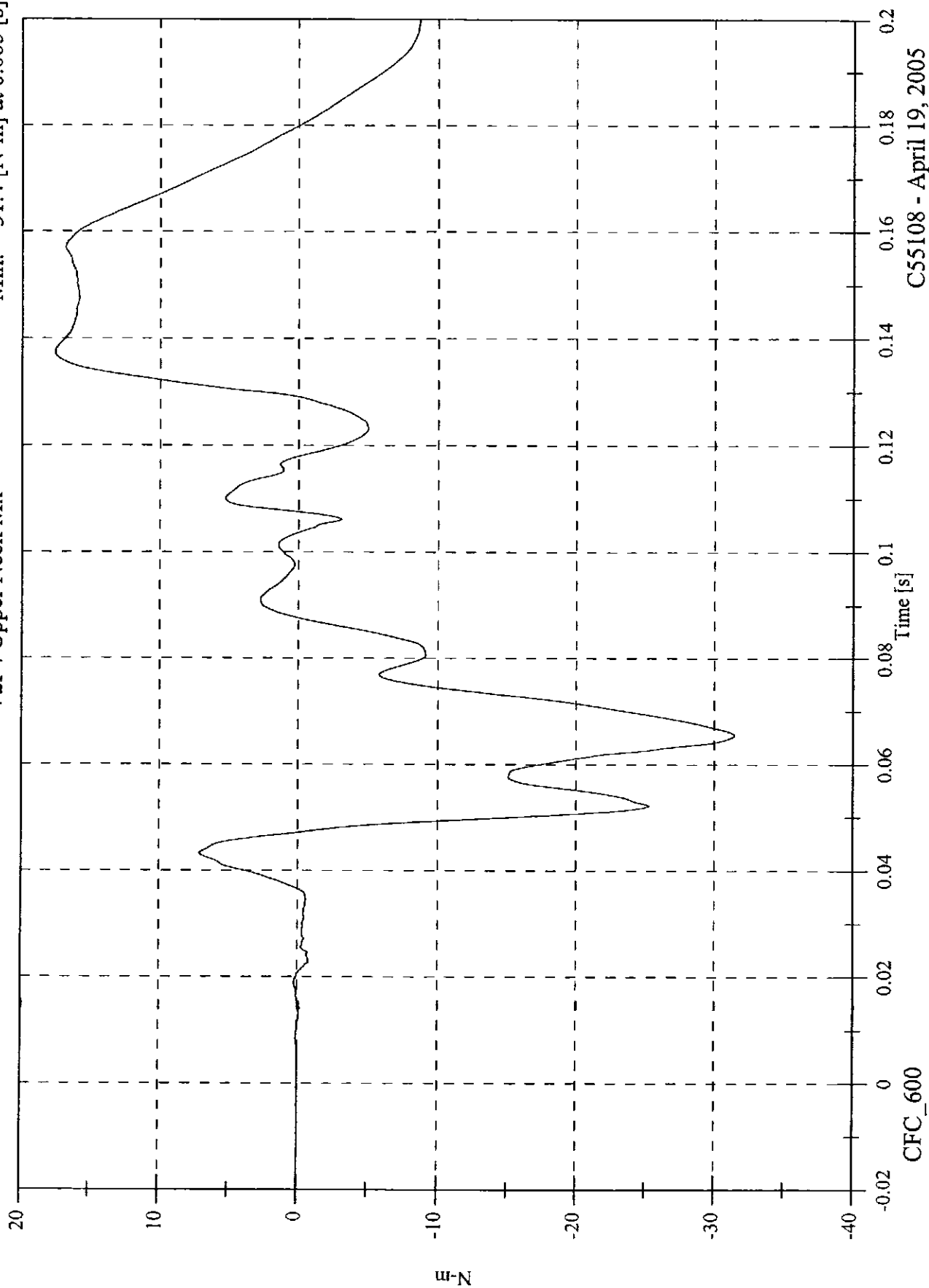


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Upper Neck Mx

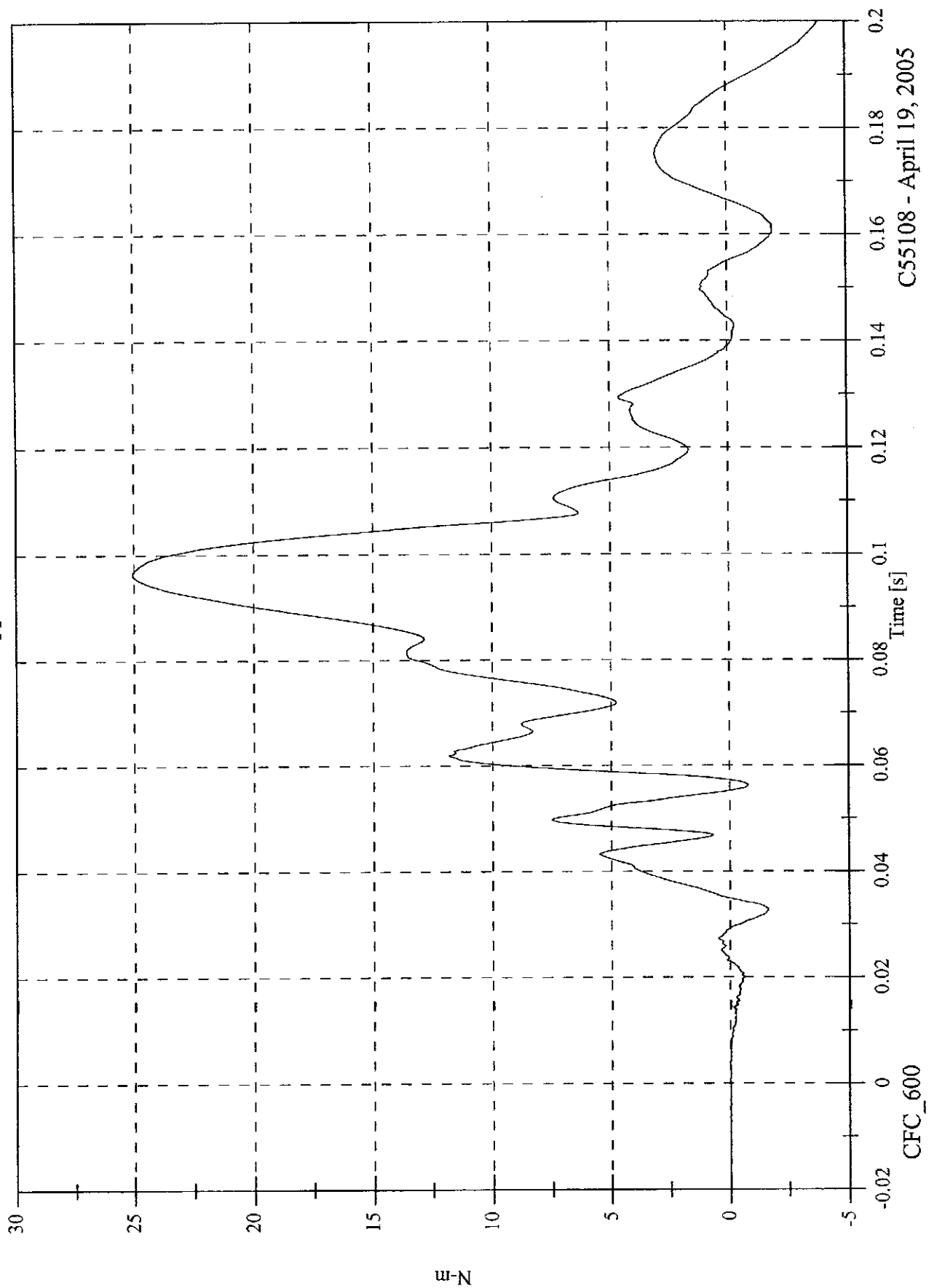
Max: 17.6 [N·m] at 0.138 [s]
Min: -31.4 [N·m] at 0.065 [s]



C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon
V2P4 Upper Neck My

Max: 25.1 [N-m] at 0.096 [s]
Min: -3.9 [N-m] at 0.200 [s]

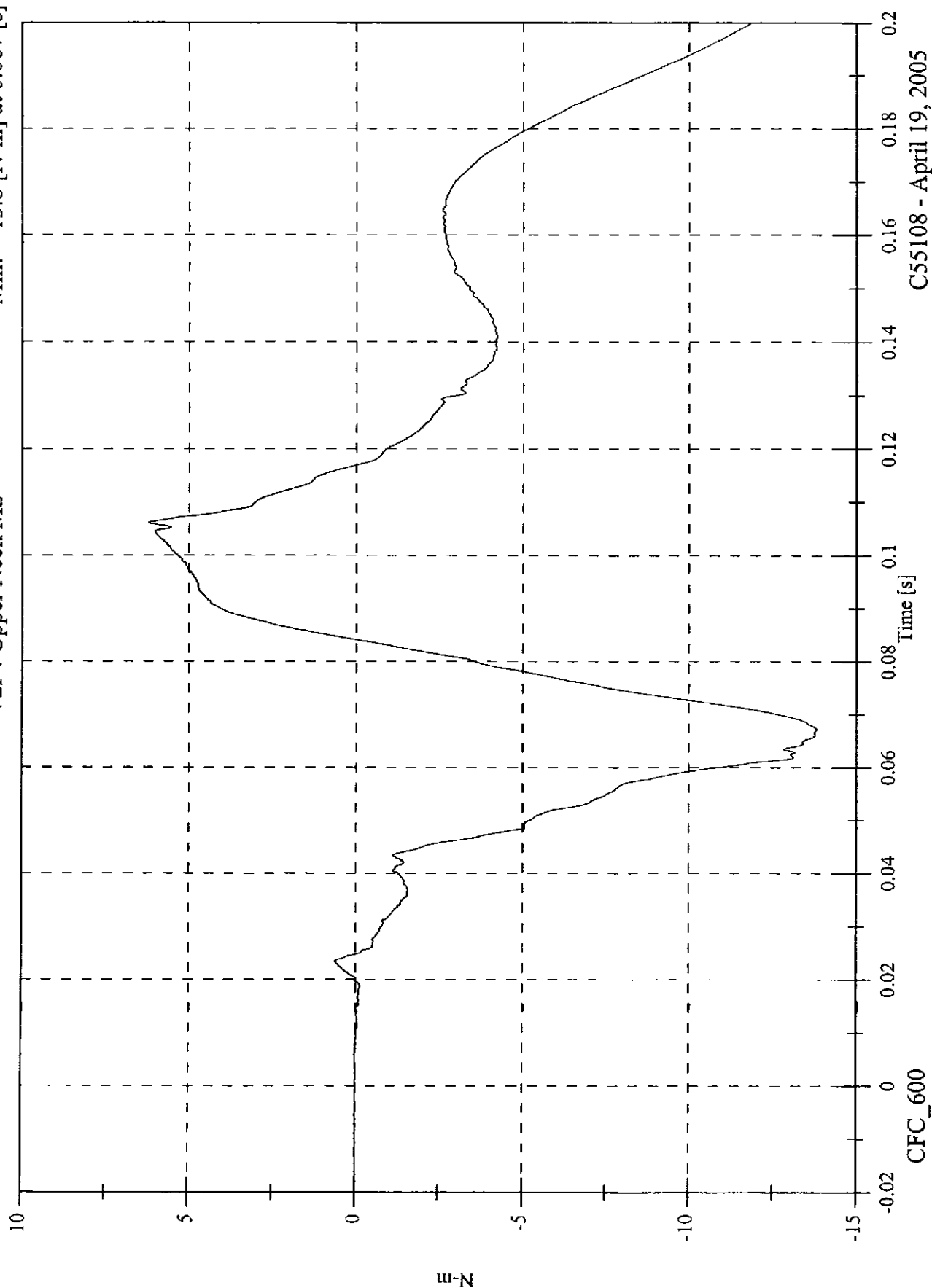


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Upper Neck Mz

Max: 6.2 [N-m] at 0.106 [s]
Min: -13.8 [N-m] at 0.067 [s]



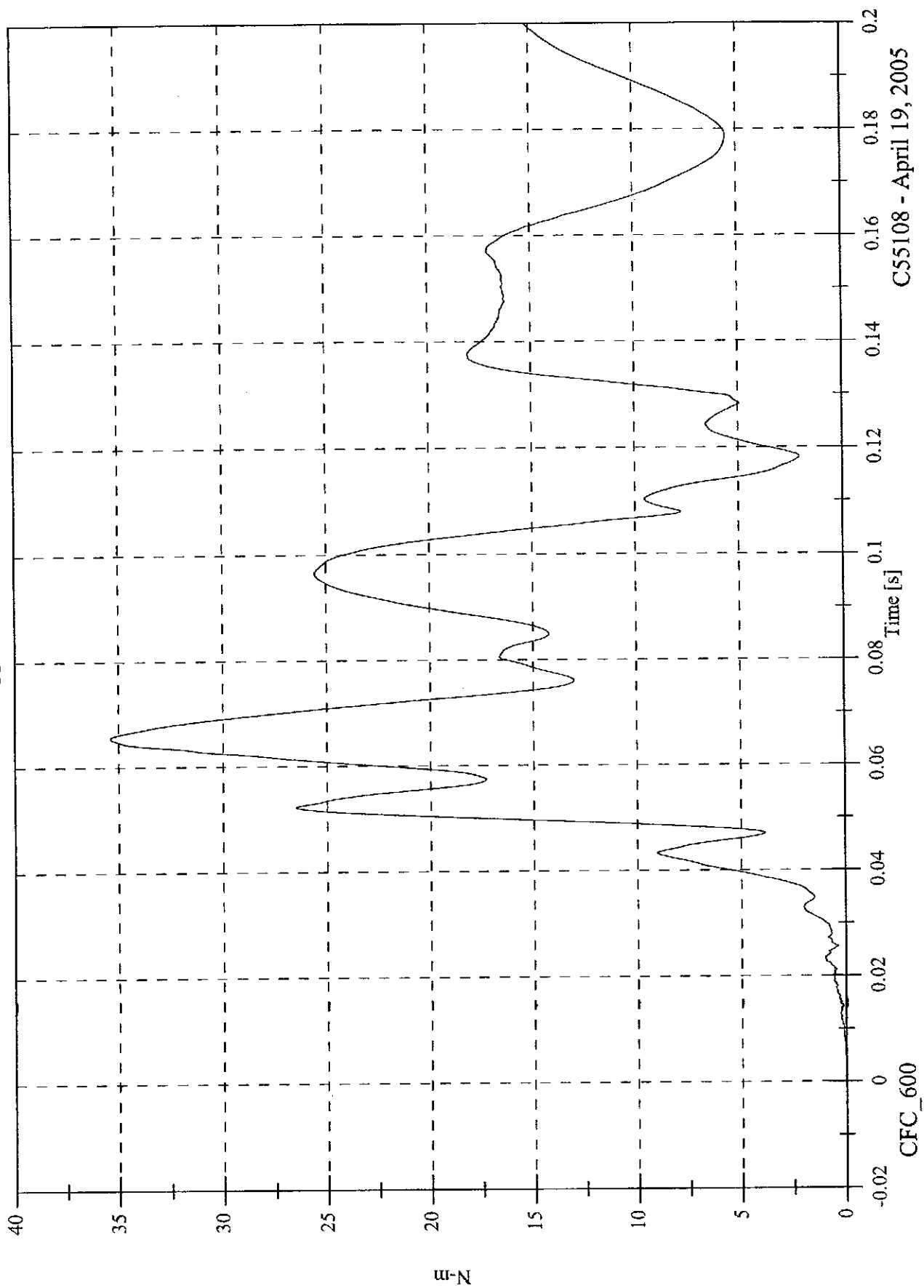
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 35.4 [N-m] at 0.065 [s]

Min: 0.0 [N-m] at -0.008 [s]

V2P4 Upper Neck M Resultant

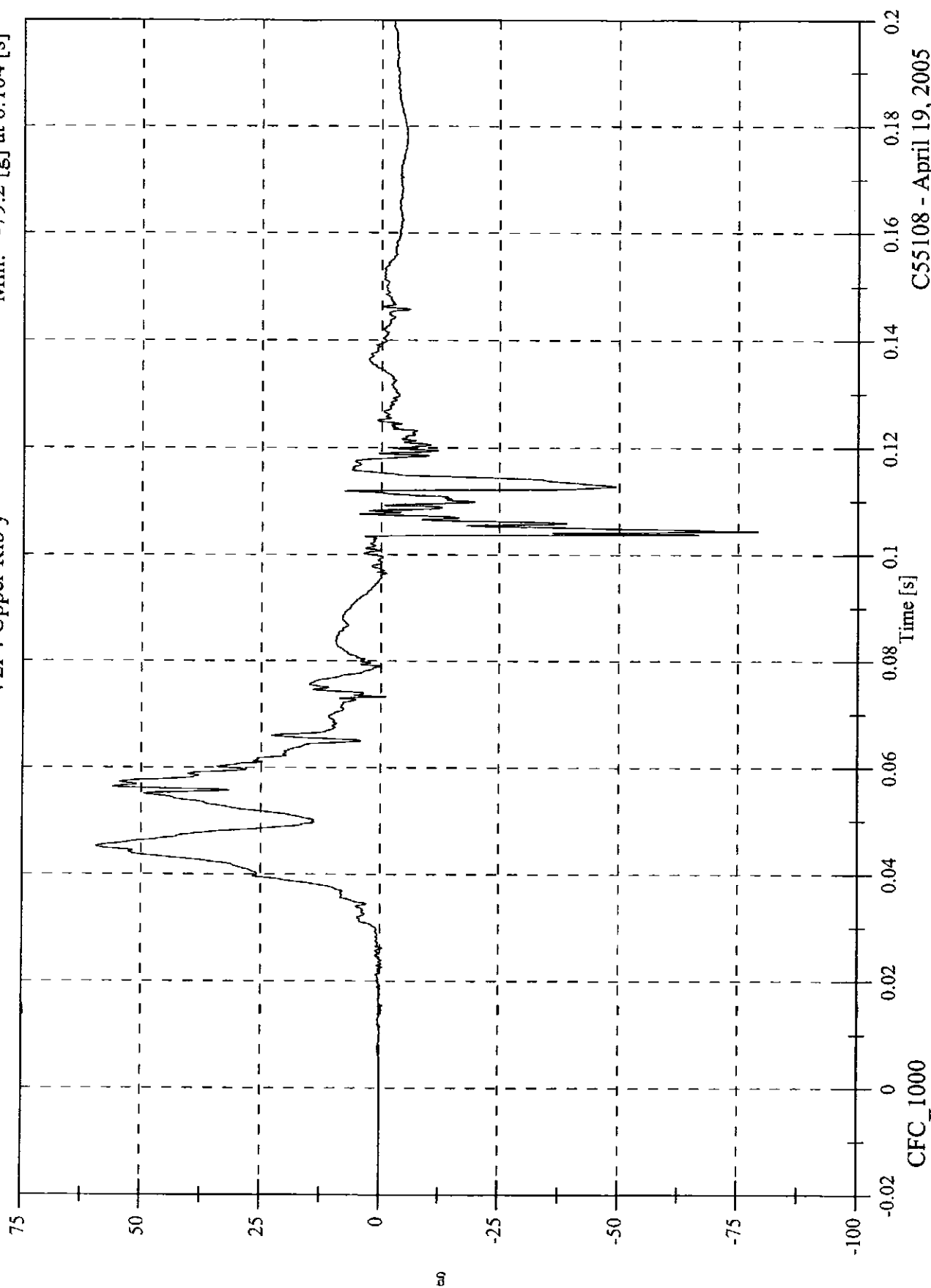


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P4 Upper Rib y

Max: 59.4 [g] at 0.045 [s]
Min: -79.2 [g] at 0.104 [s]



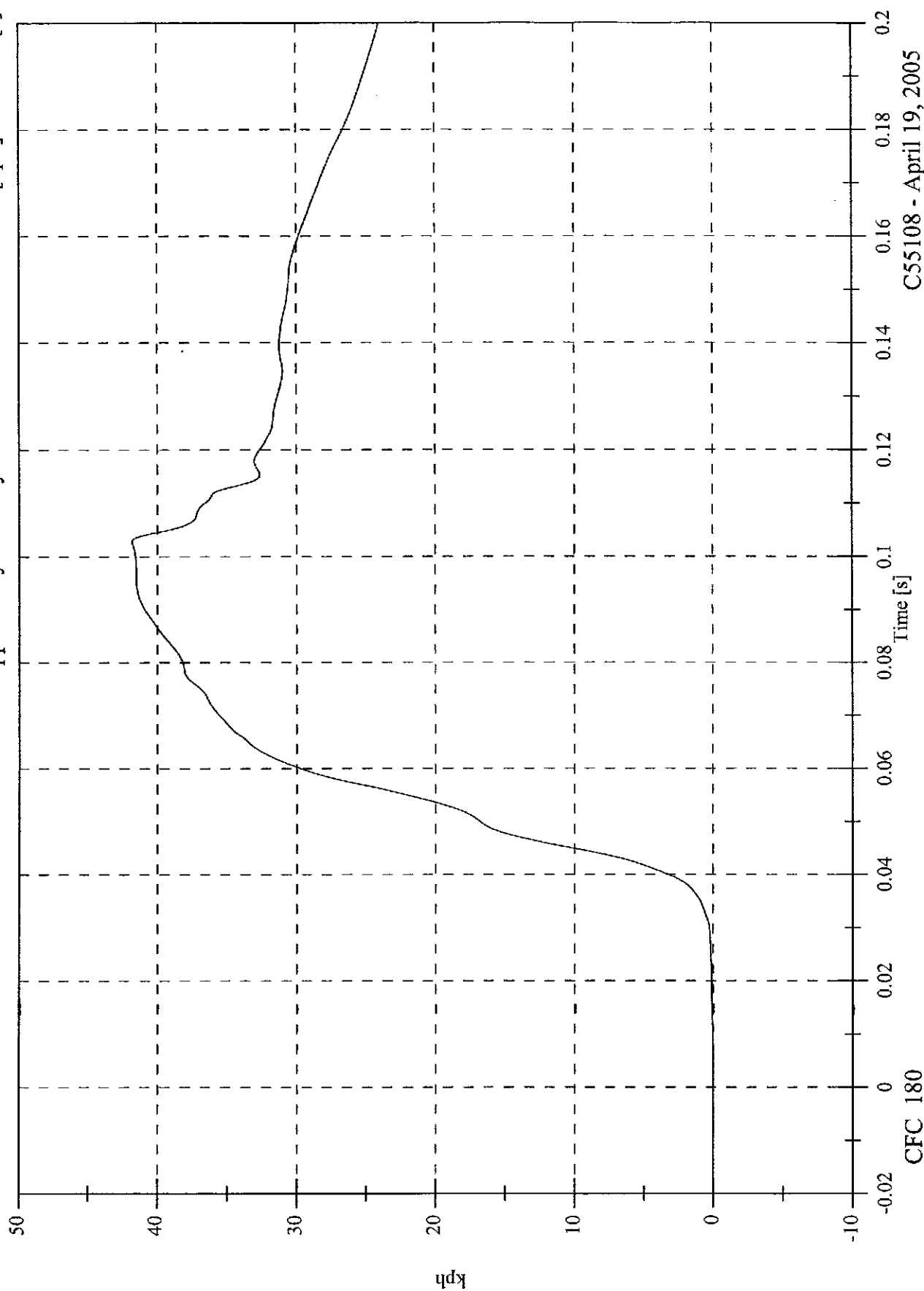
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P4 Upper Rib y Velocity

Max: 41.8 [kph] at 0.103 [s]

Min: -0.0 [kph] at -0.020 [s]

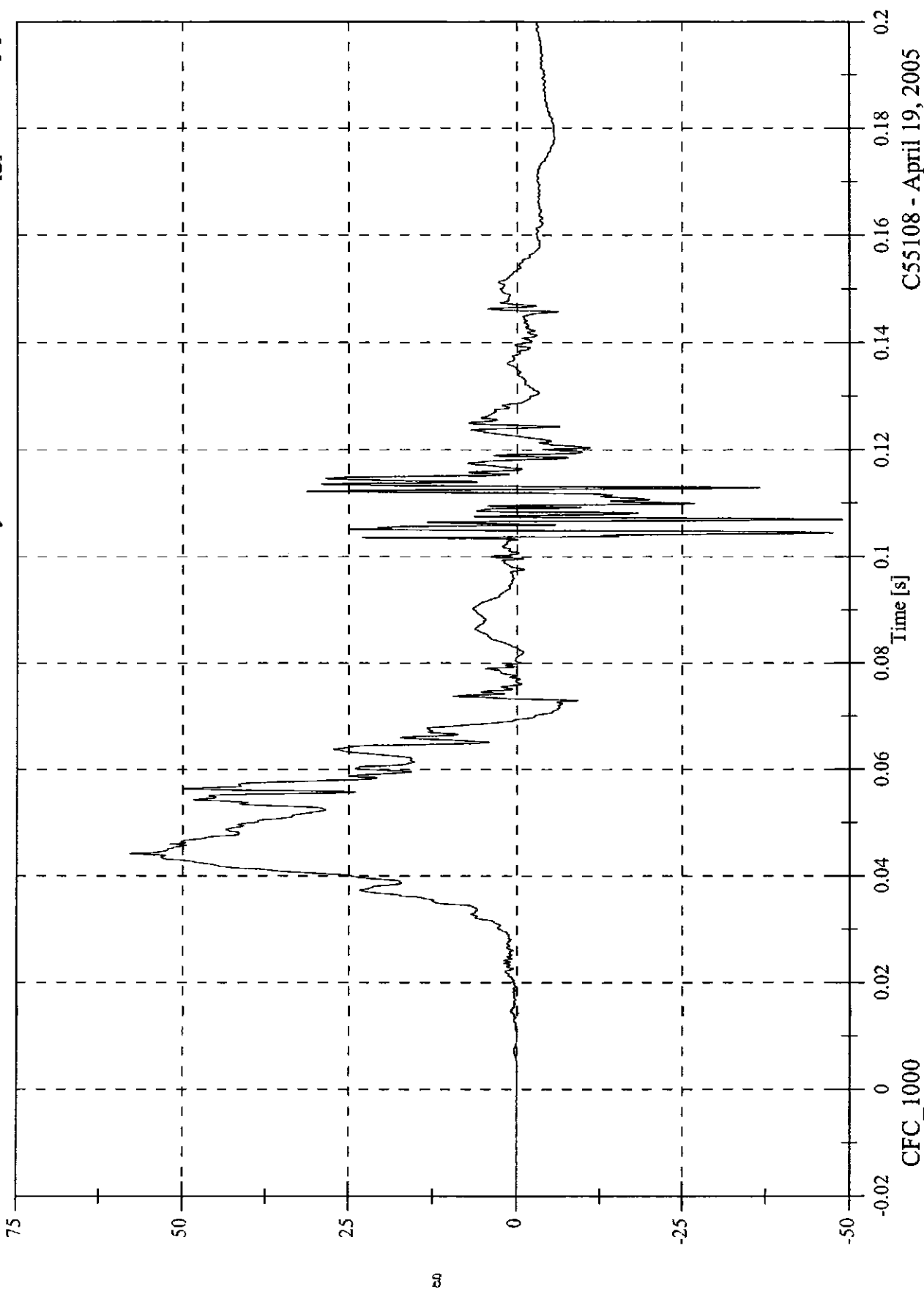


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Lower Rib y

Max: 57.8 [g] at 0.044 [s]
Min: -49.0 [g] at 0.107 [s]

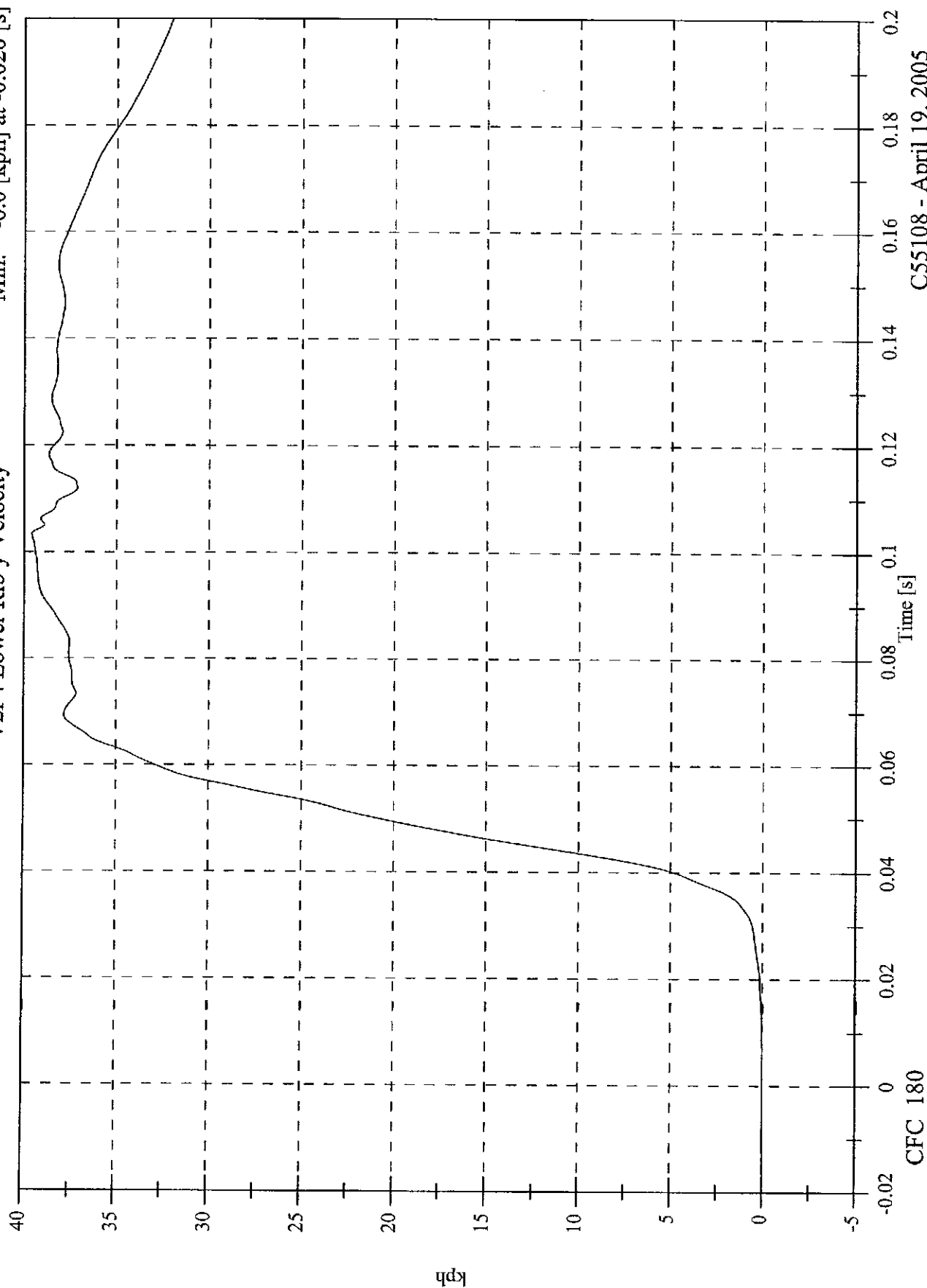


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Lower Rib y Velocity

Max: 39.6 [kph] at 0.103 [s]
Min: -0.0 [kph] at -0.020 [s]



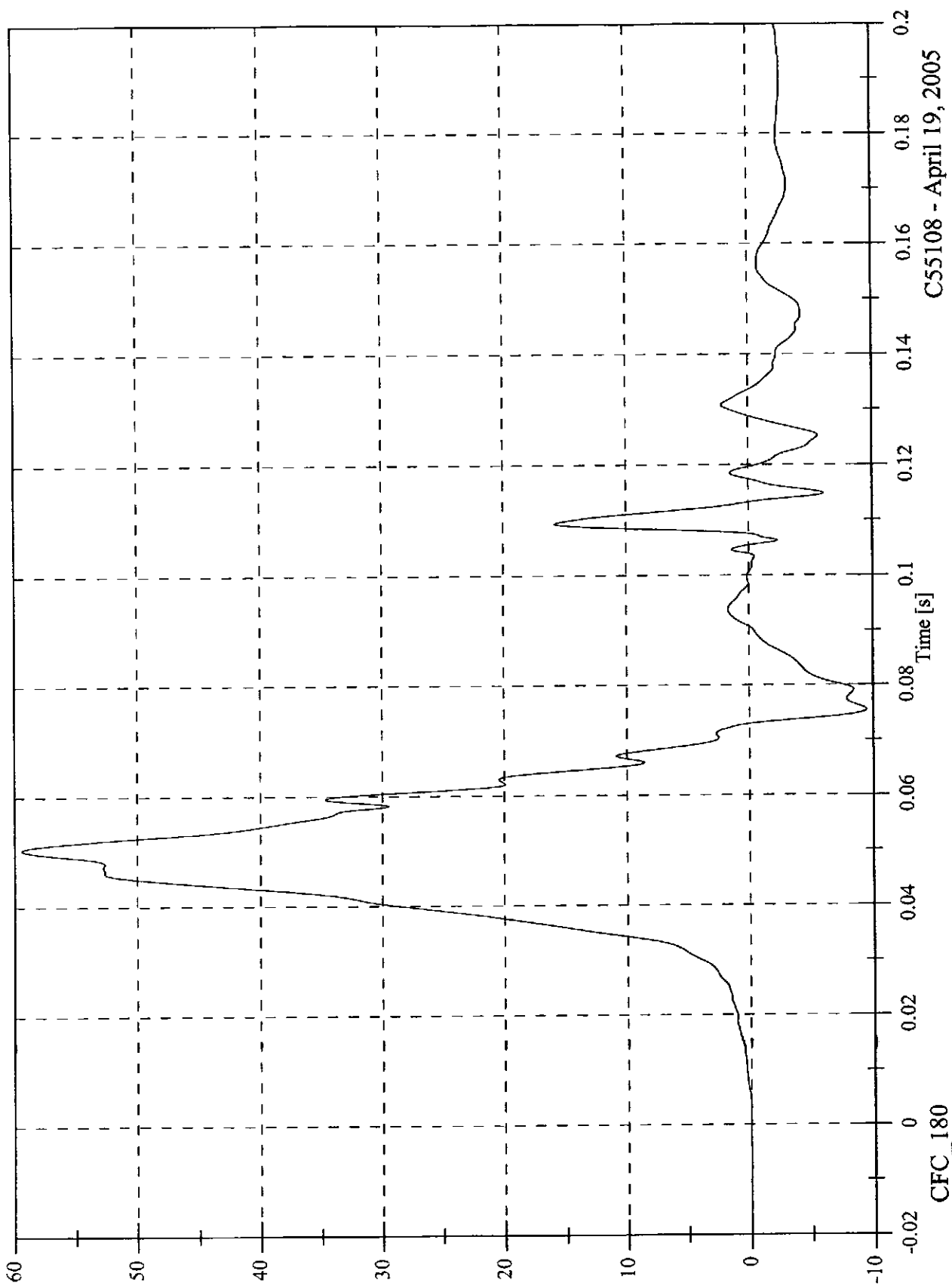
C55108 - April 19, 2005

2005 FMV/SS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Lower Spine y

Max: 59.4 [g] at 0.050 [s]

Min: -9.4 [g] at 0.075 [s]



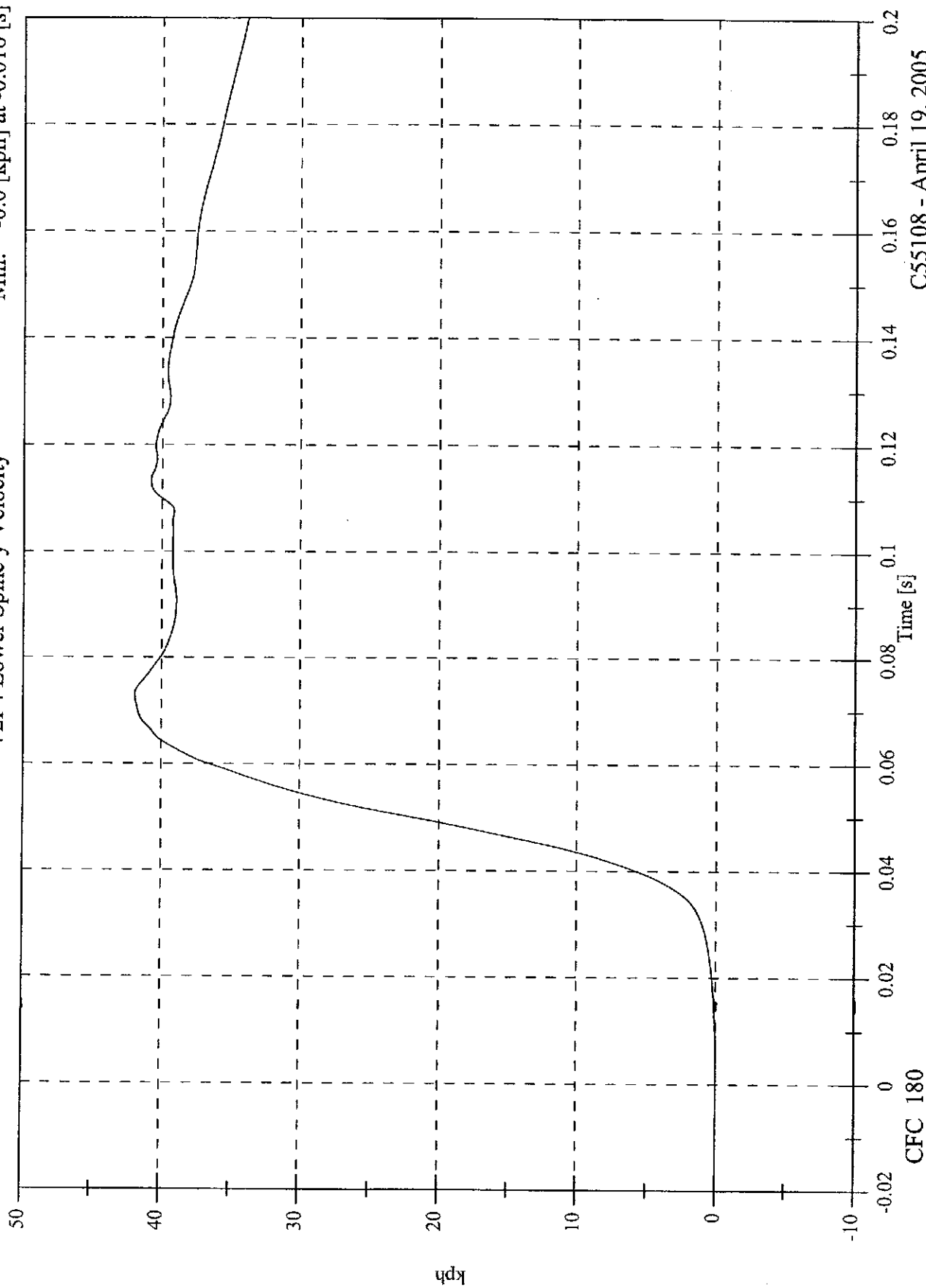
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 41.9 [kph] at 0.073 [s]

Min: -0.0 [kph] at -0.016 [s]

V2P4 Lower Spine y Velocity

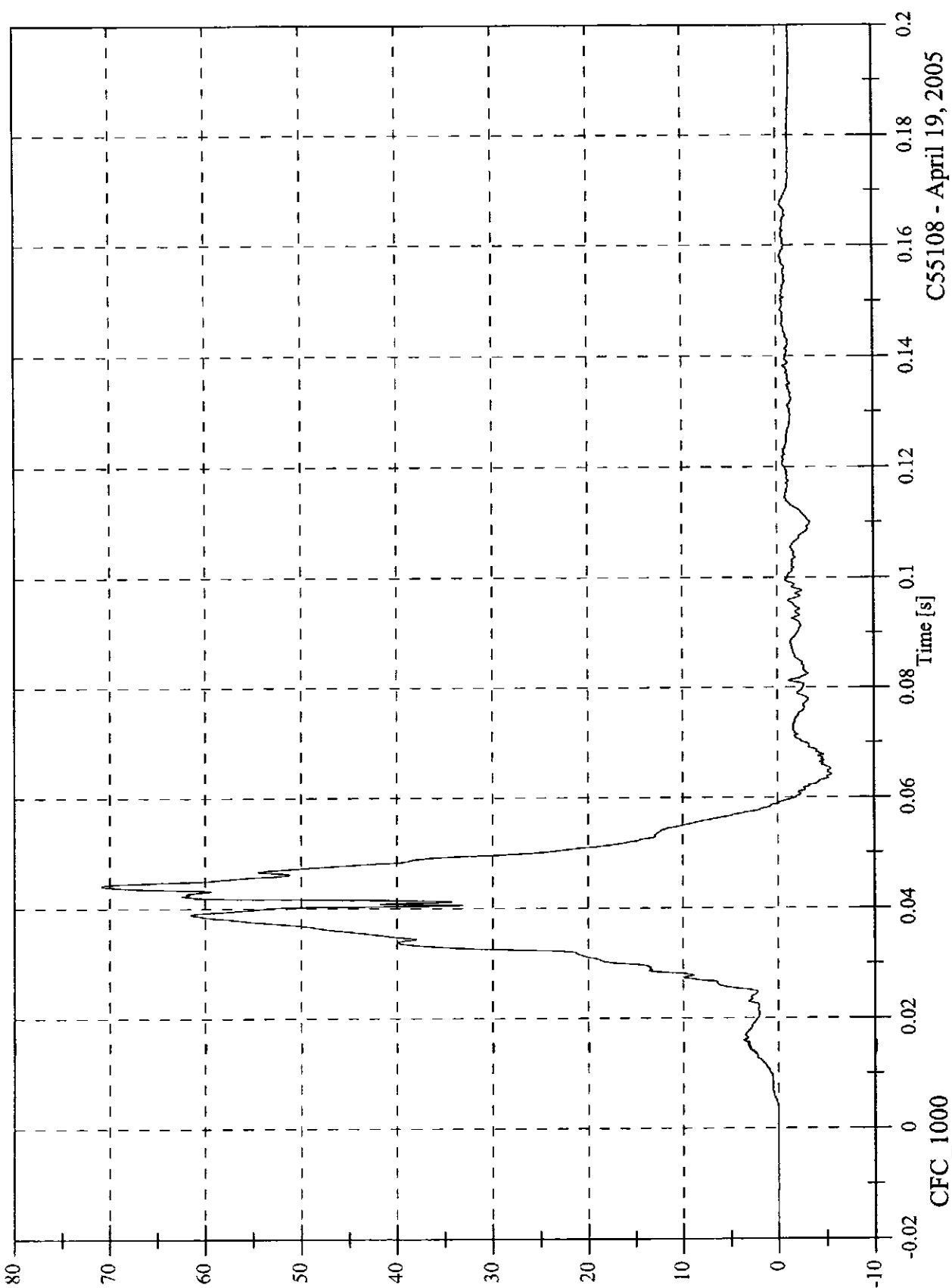


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Pelvic y

Max: 70.8 [g] at 0.044 [s]
Min: -5.6 [g] at 0.064 [s]

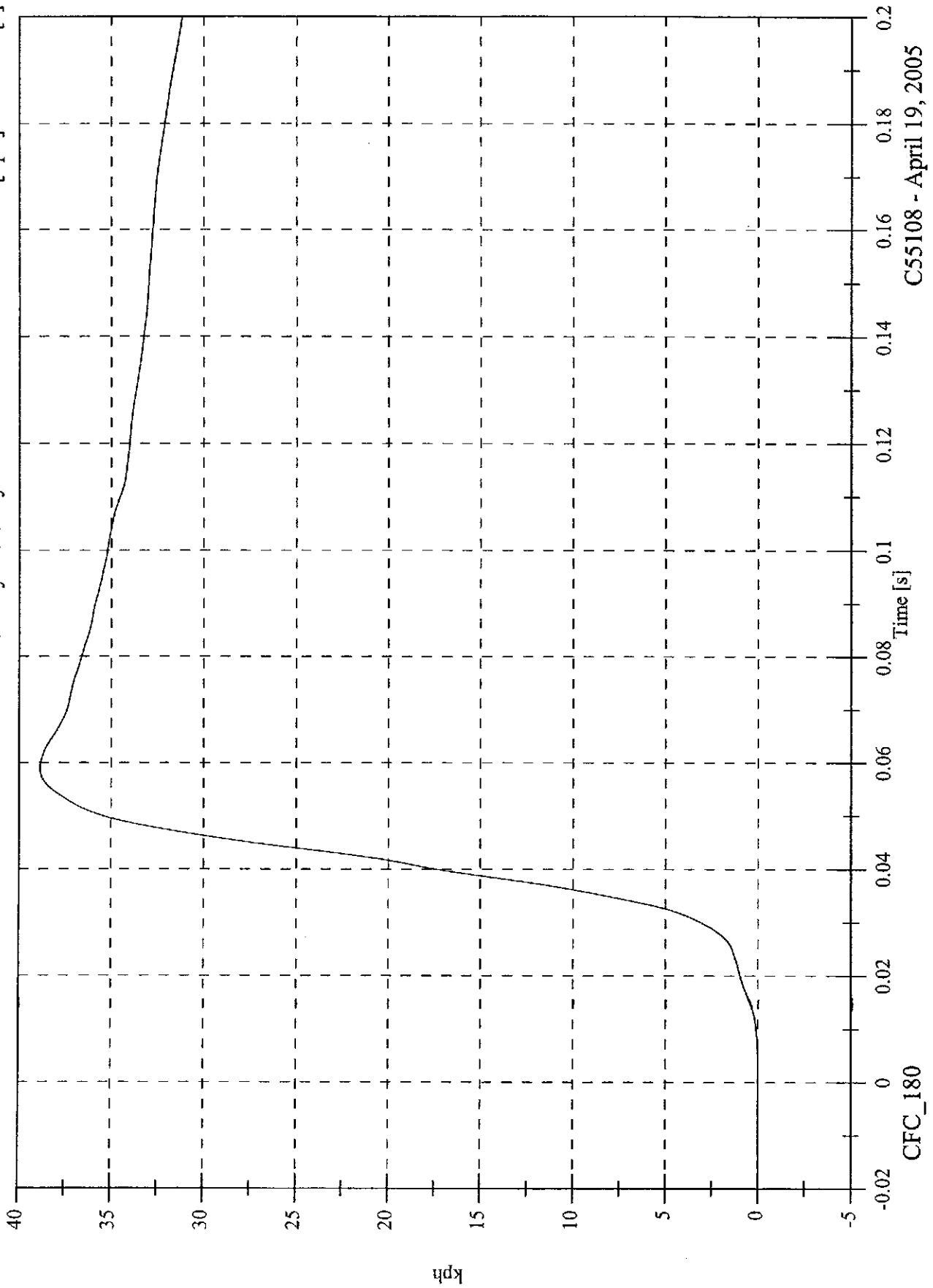


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 38.9 [kph] at 0.059 [s]
Min: -0.0 [kph] at -0.020 [s]

V2P4 Pelvic y Velocity

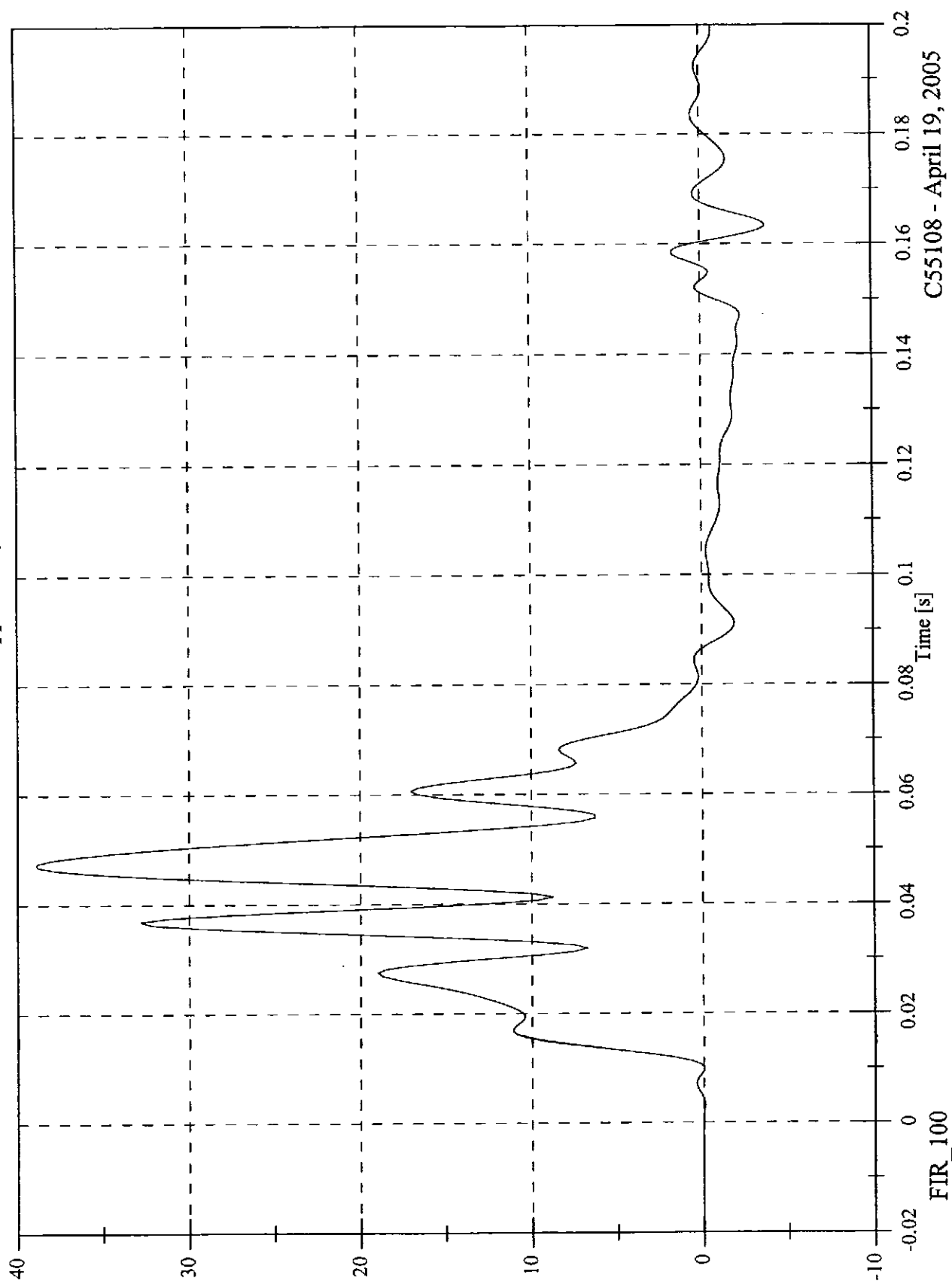


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Upper Rib y

Max: 38.9 [g] at 0.047 [s]
Min: -3.8 [g] at 0.163 [s]

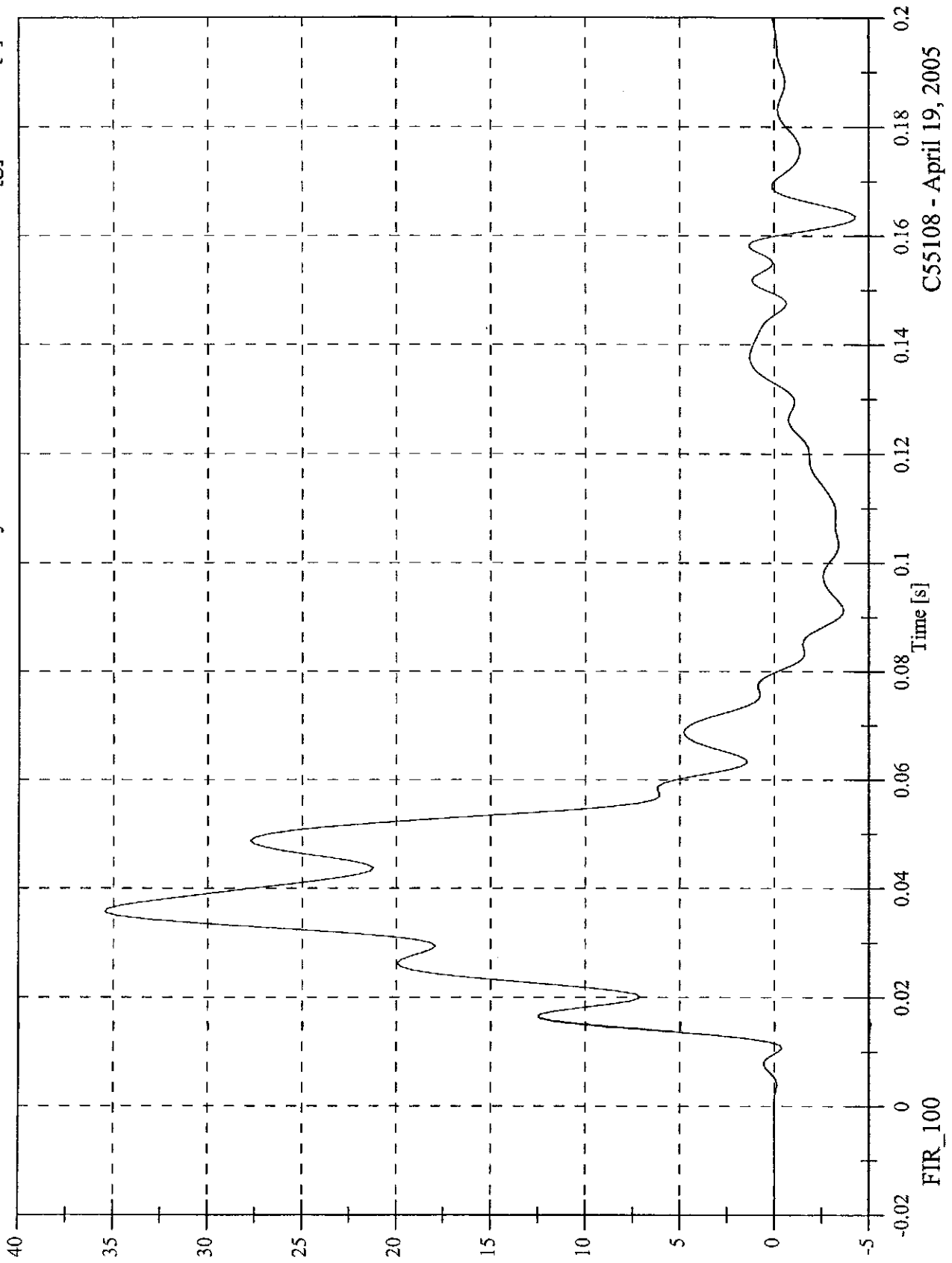


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Lower Rib y

Max: 35.5 [g] at 0.036 [s]
Min: -4.3 [g] at 0.164 [s]

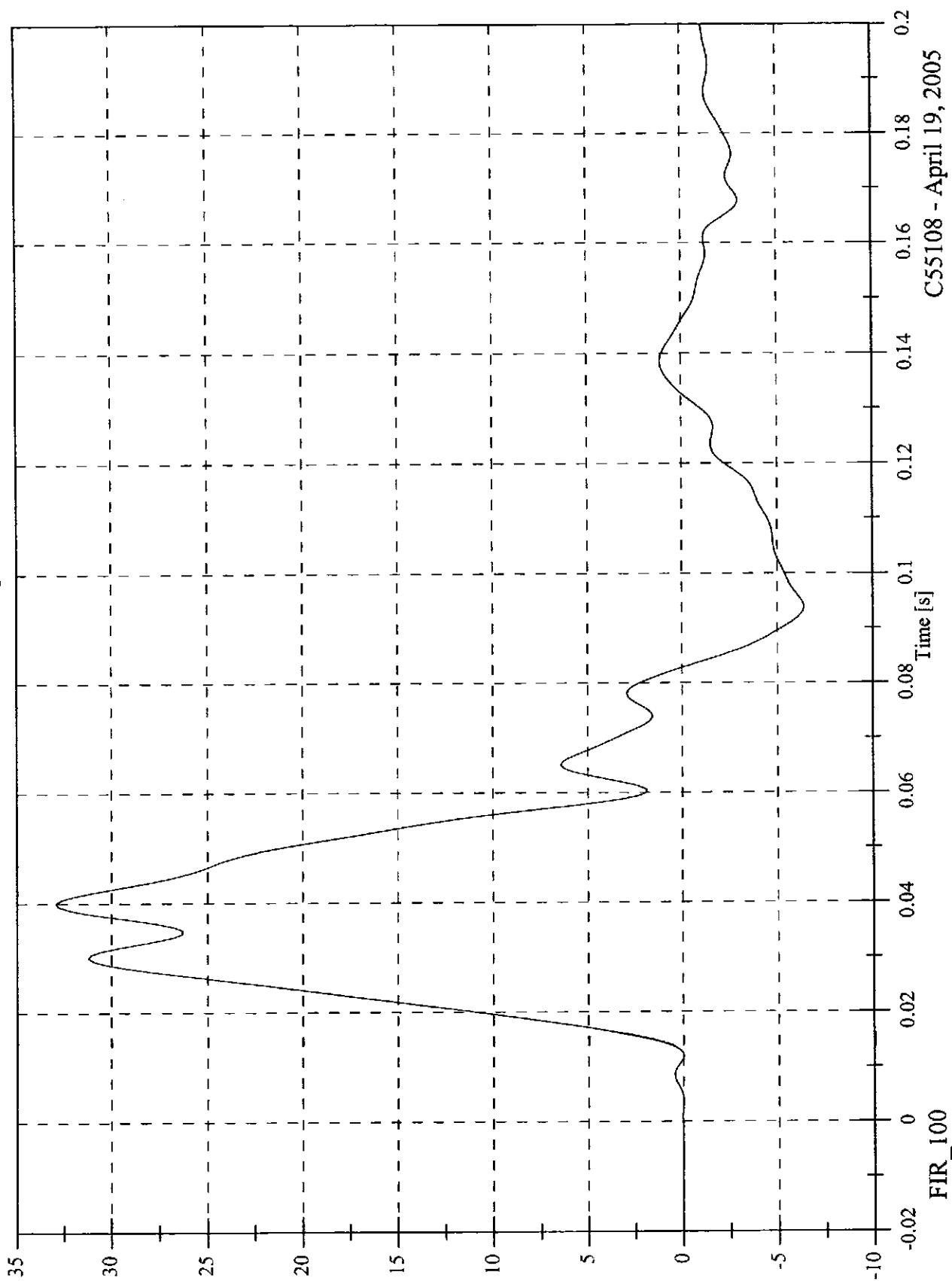


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 32.9 [g] at 0.040 [s]
 Min: -6.4 [g] at 0.094 [s]

V2P1 Lower Spine y

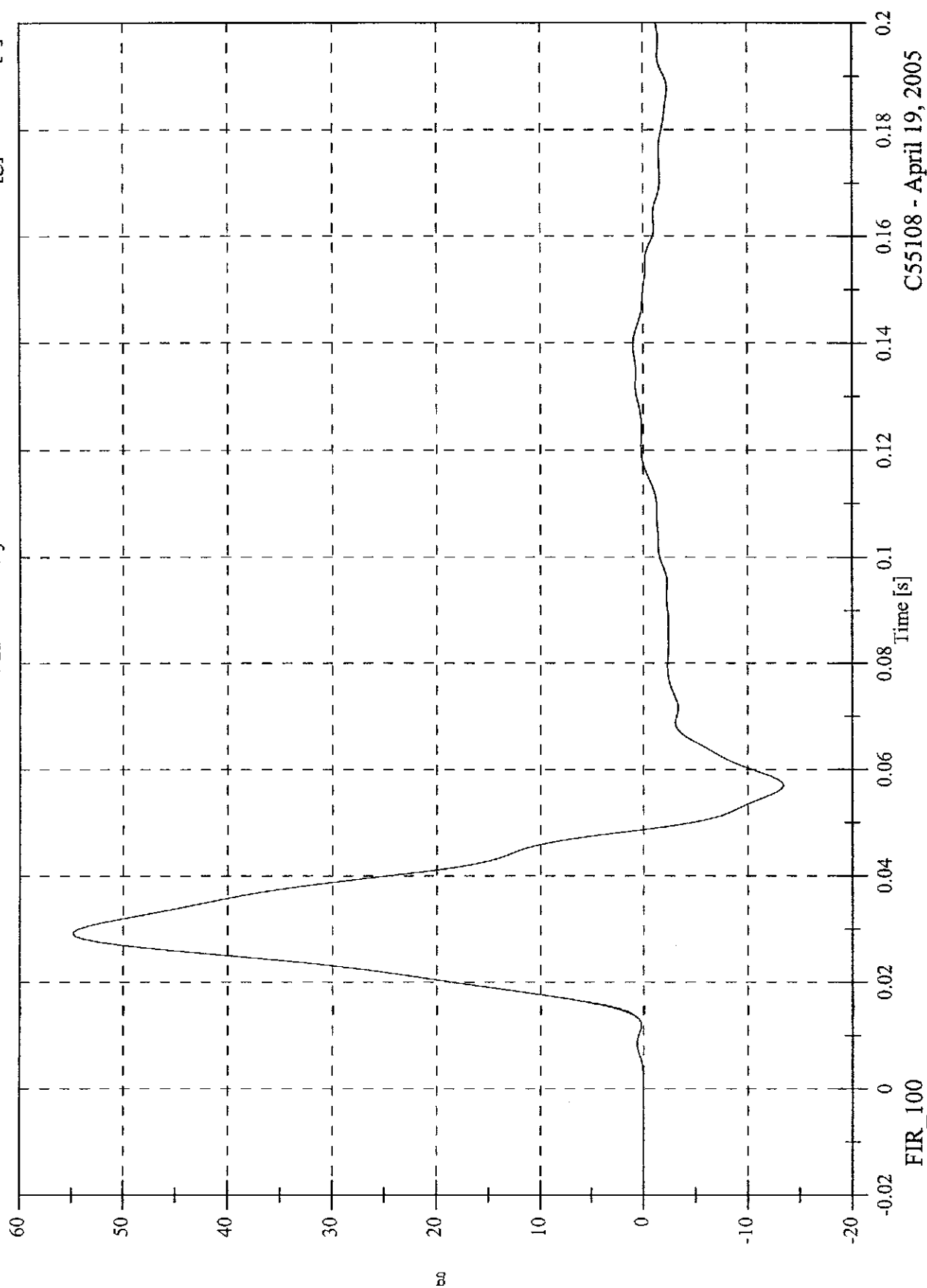


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2P1 Pelvic y

Max: 54.9 [g] at 0.029 [s]
Min: -13.4 [g] at 0.057 [s]

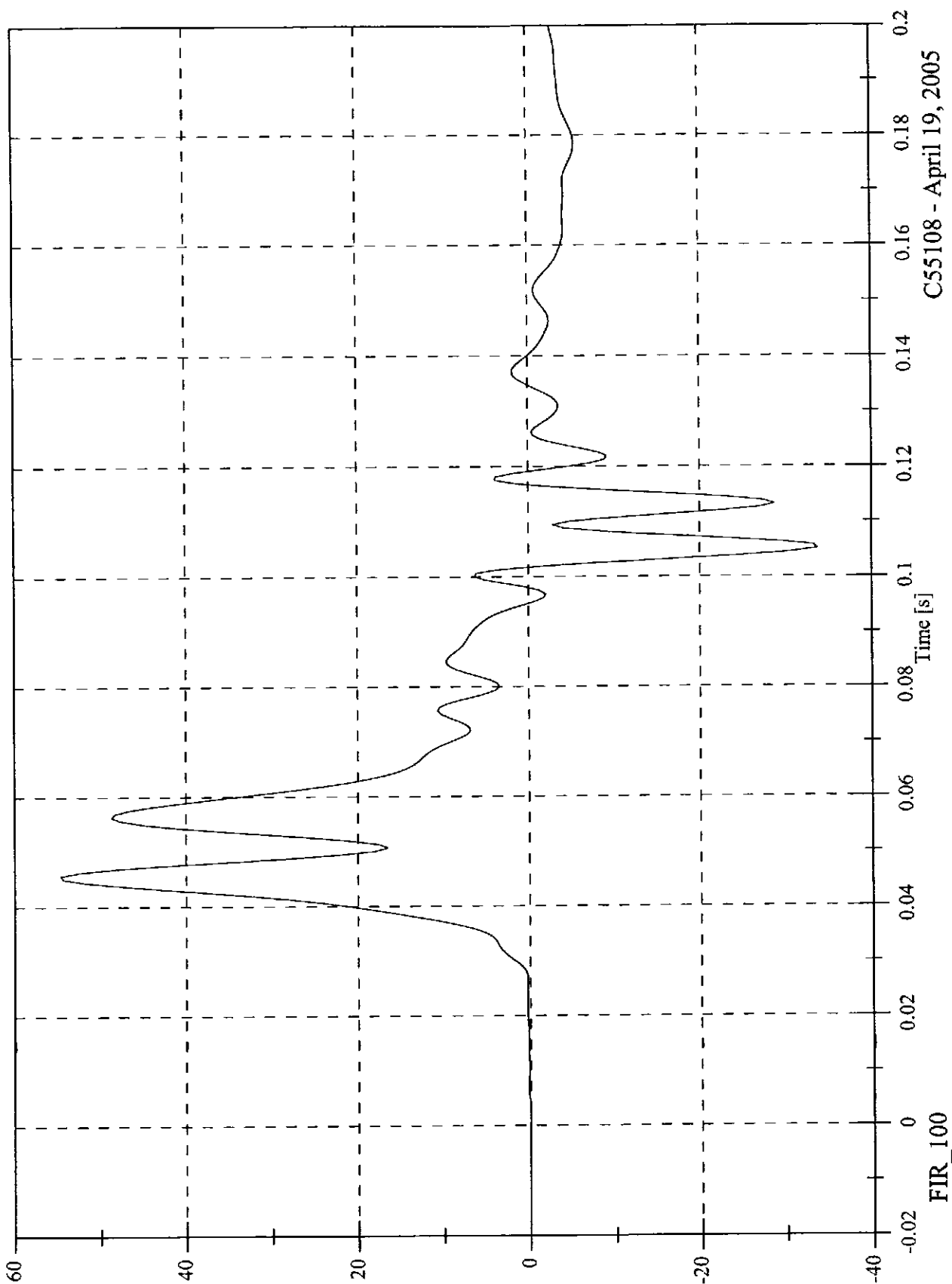


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Upper Rib y

Max: 54.6 [g] at 0.046 [s]
Min: -33.7 [g] at 0.105 [s]

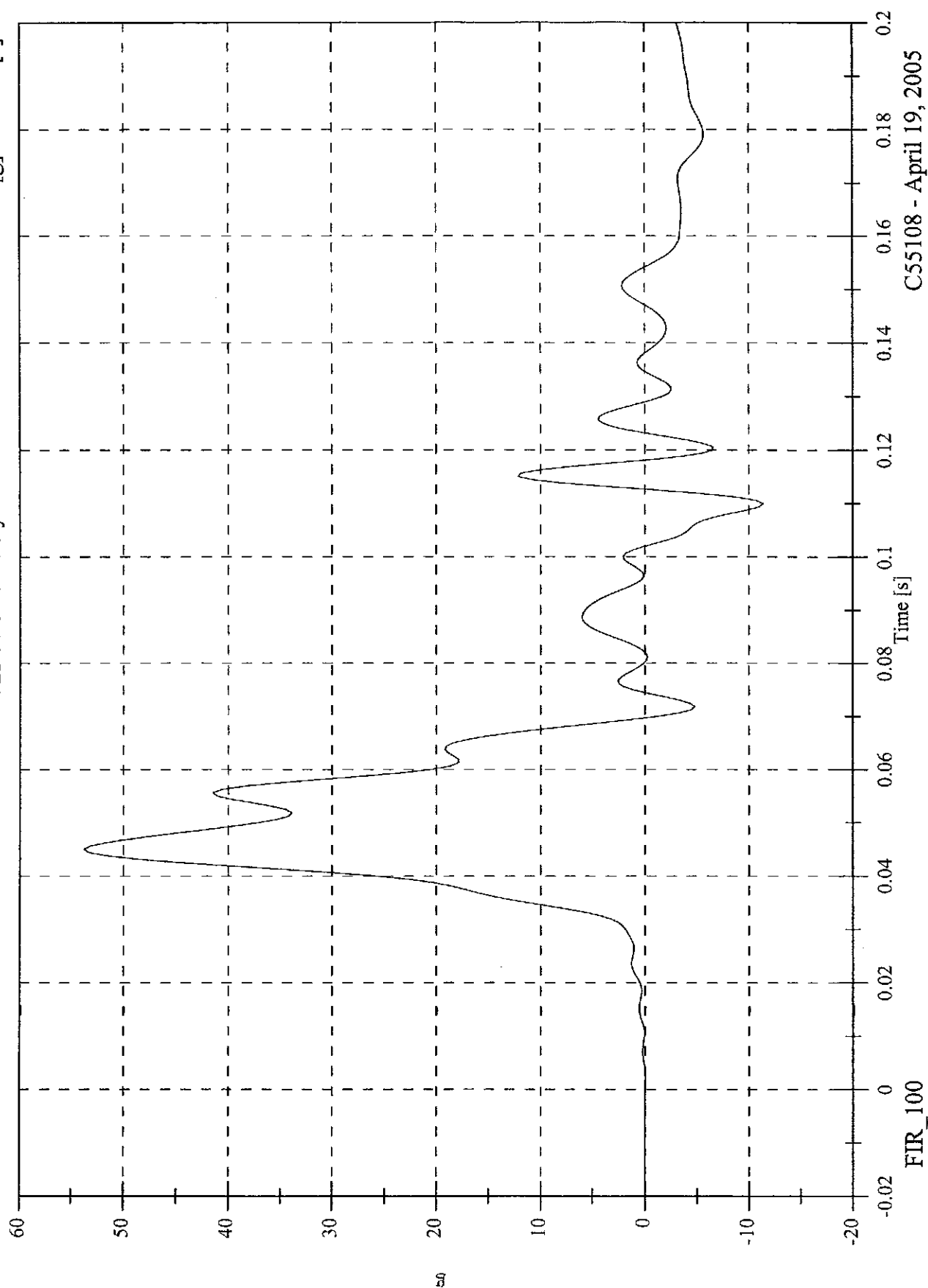


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 53.8 [g] at 0.045 [s]
Min: -11.4 [g] at 0.110 [s]

V2P4 Lower Rib y

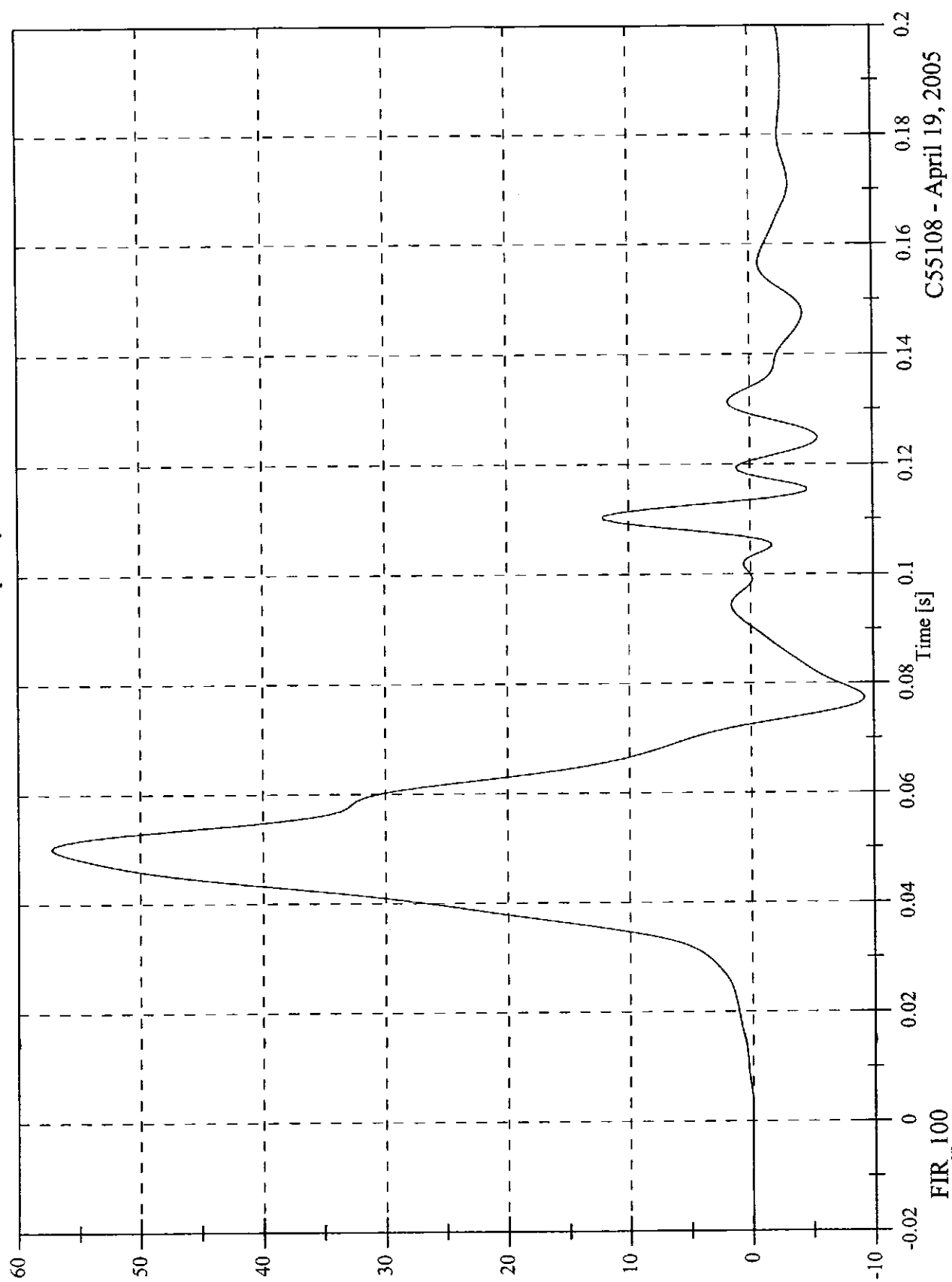


2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Lower Spine y

Max: 57.2 [g] at 0.050 [s]

Min: -9.2 [g] at 0.077 [s]

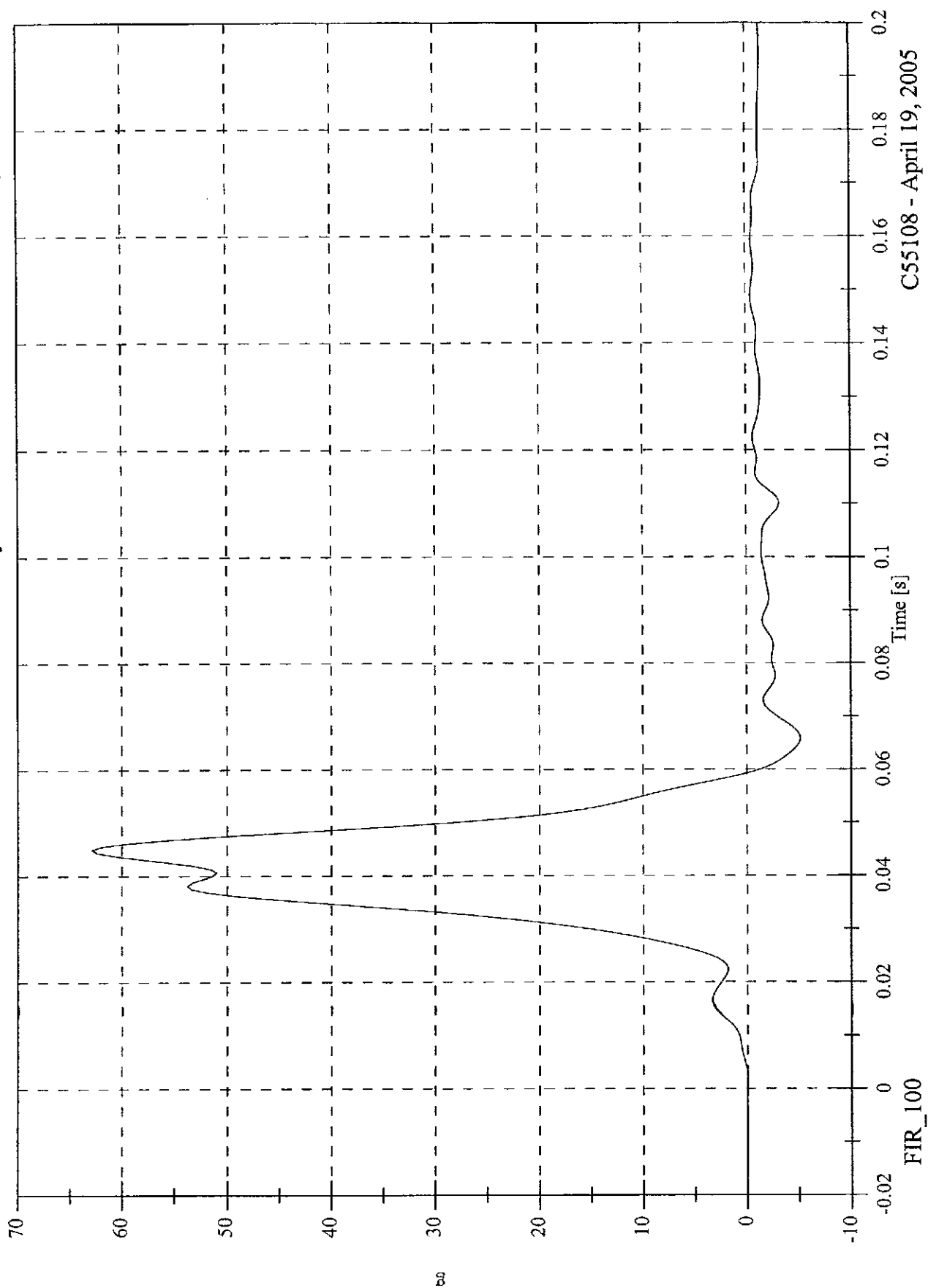


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Pelvic y

Max: 62.9 [g] at 0.045 [s]
Min: -5.2 [g] at 0.066 [s]

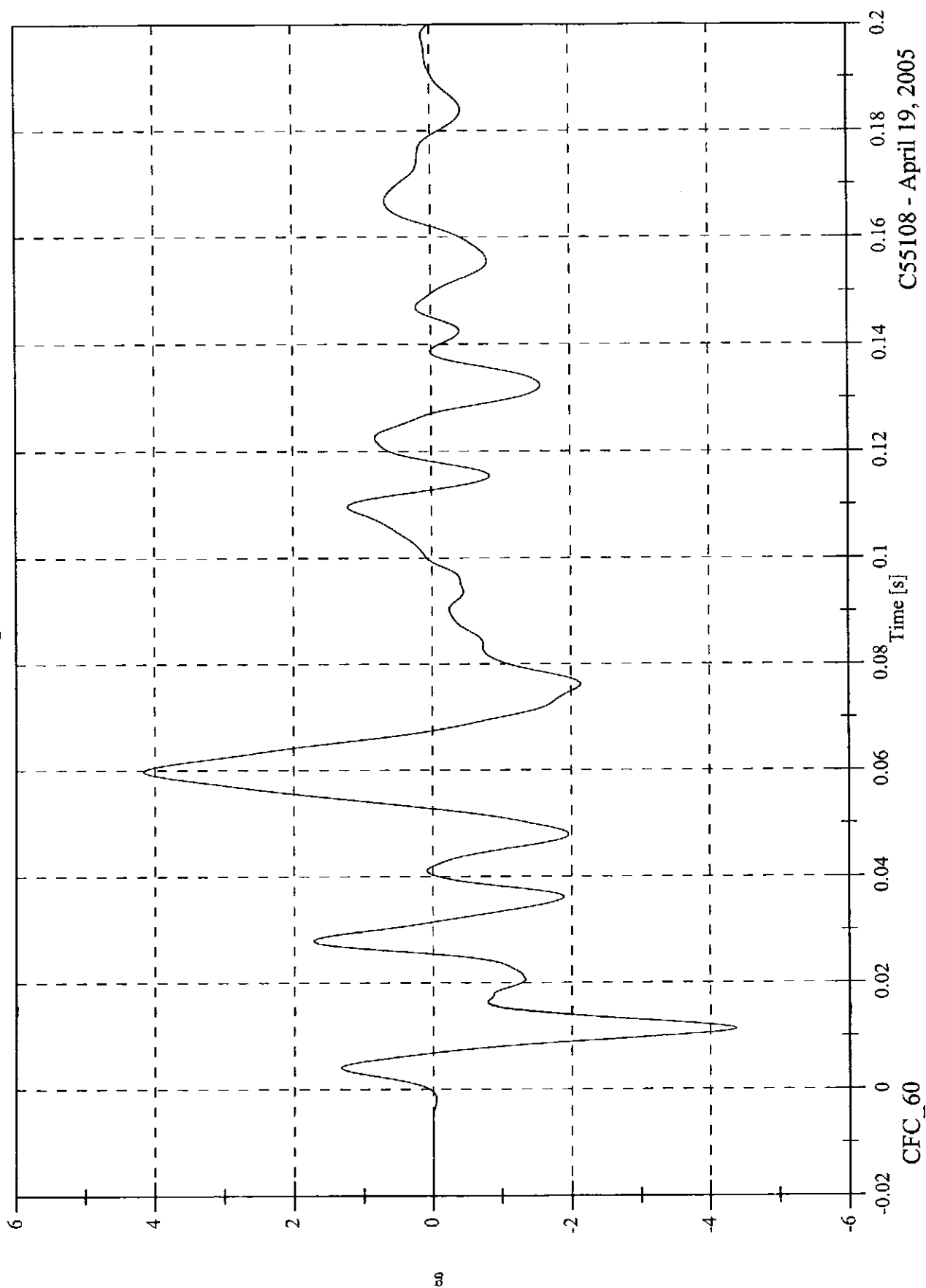


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A1 Right Front Sill X

Max: 4.2 [g] at 0.060 [s]
Min: -4.4 [g] at 0.011 [s]



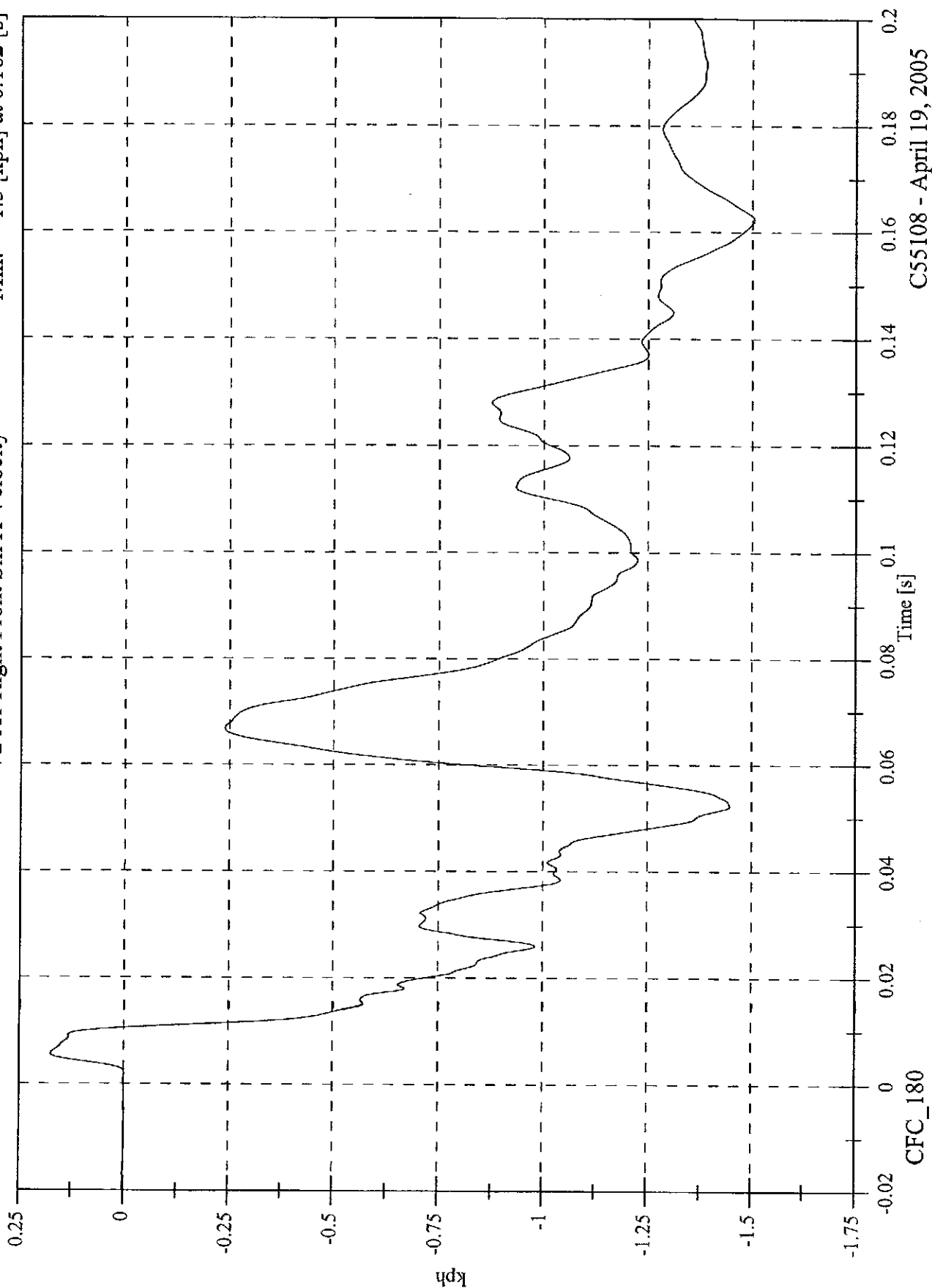
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 0.2 [kph] at 0.006 [s]

Min: -1.5 [kph] at 0.162 [s]

V2 A1 Right Front Sill X Velocity



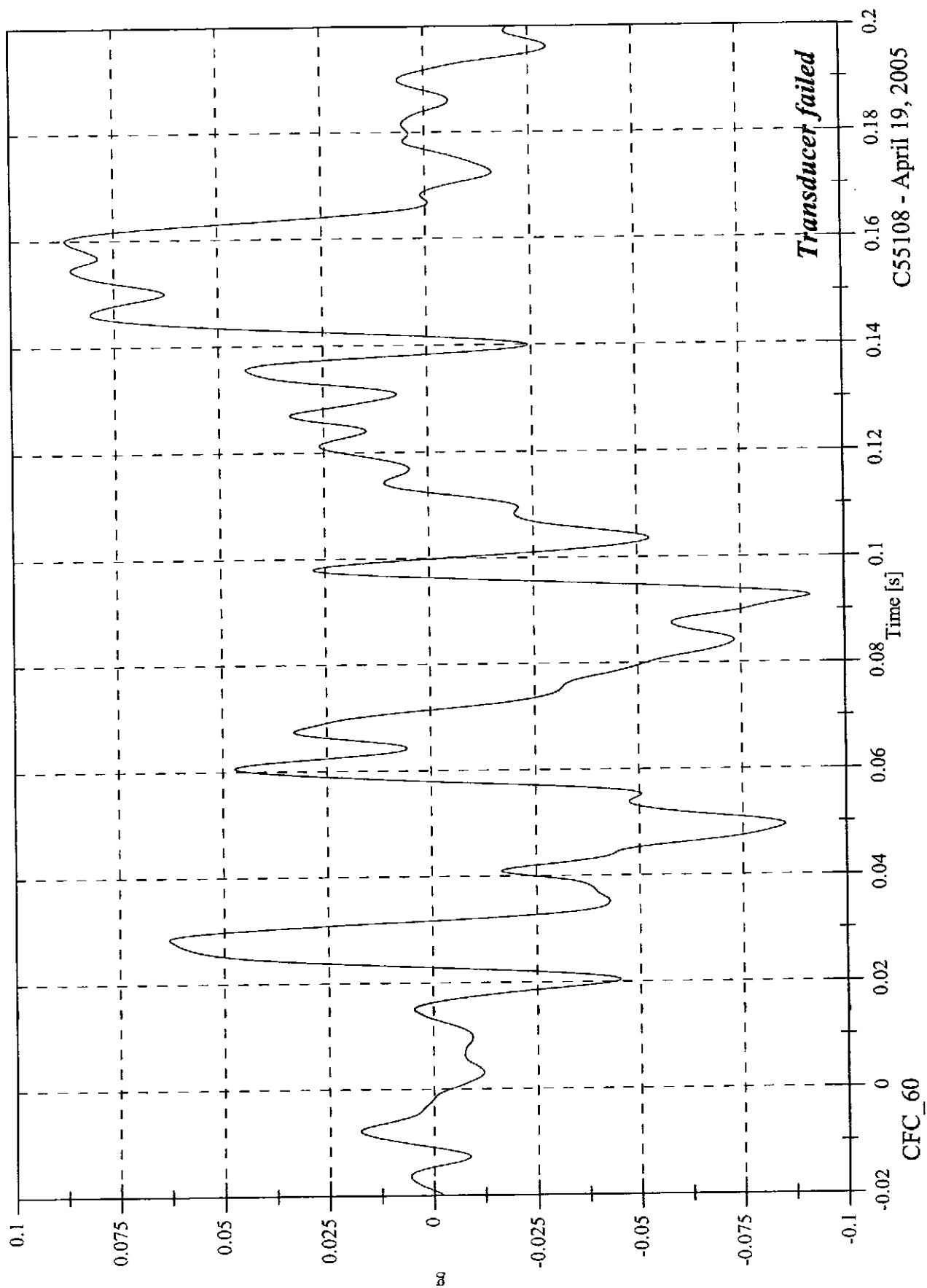
CFC_180

C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A1 Right Front Sill Y

Max: 0.1 [g] at 0.160 [s]
Min: -0.1 [g] at 0.093 [s]

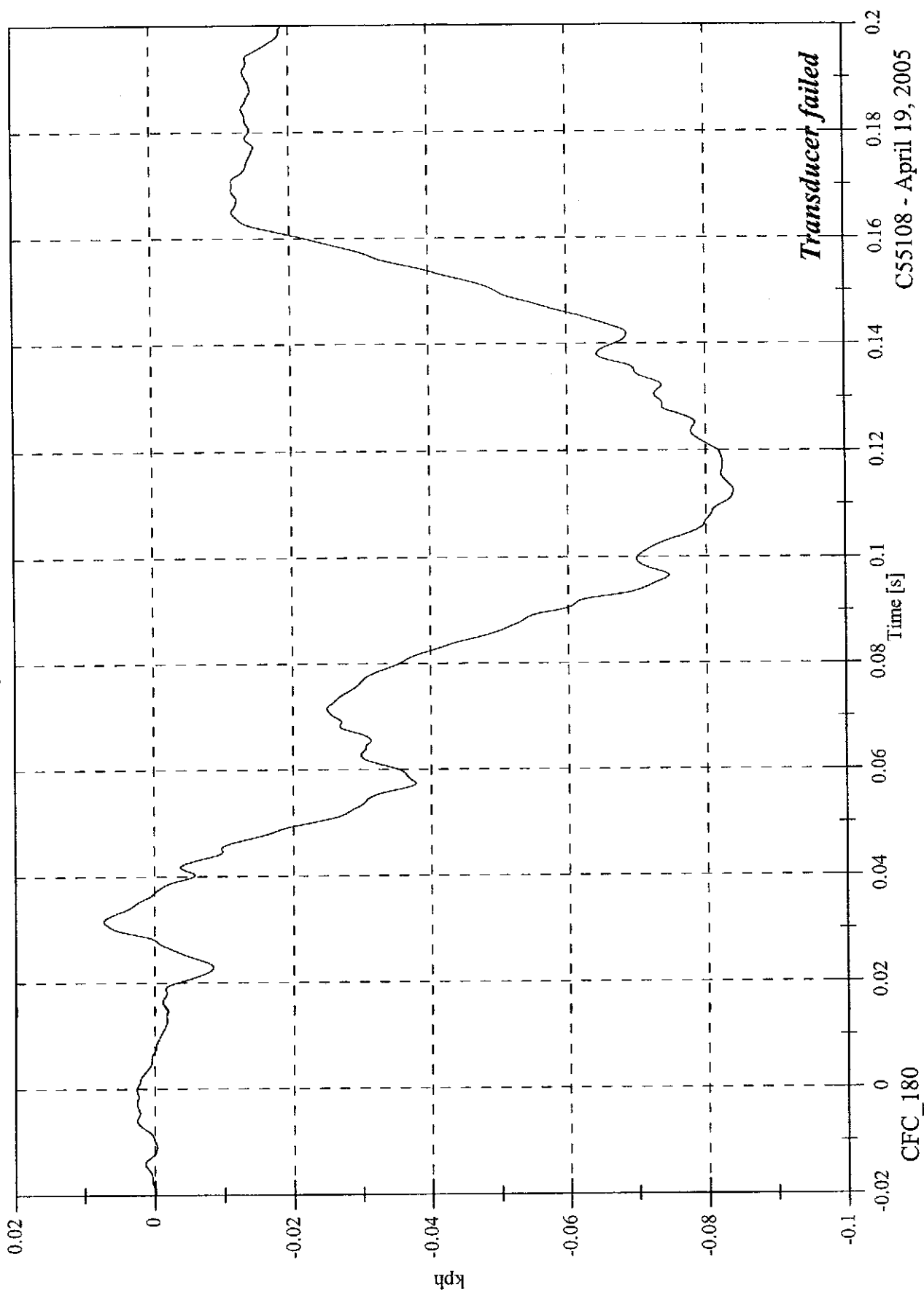


2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A1 Right Front Sill Y Velocity

Max: 0.0 [kph] at 0.032 [s]

Min: -0.1 [kph] at 0.112 [s]



Transducer failed

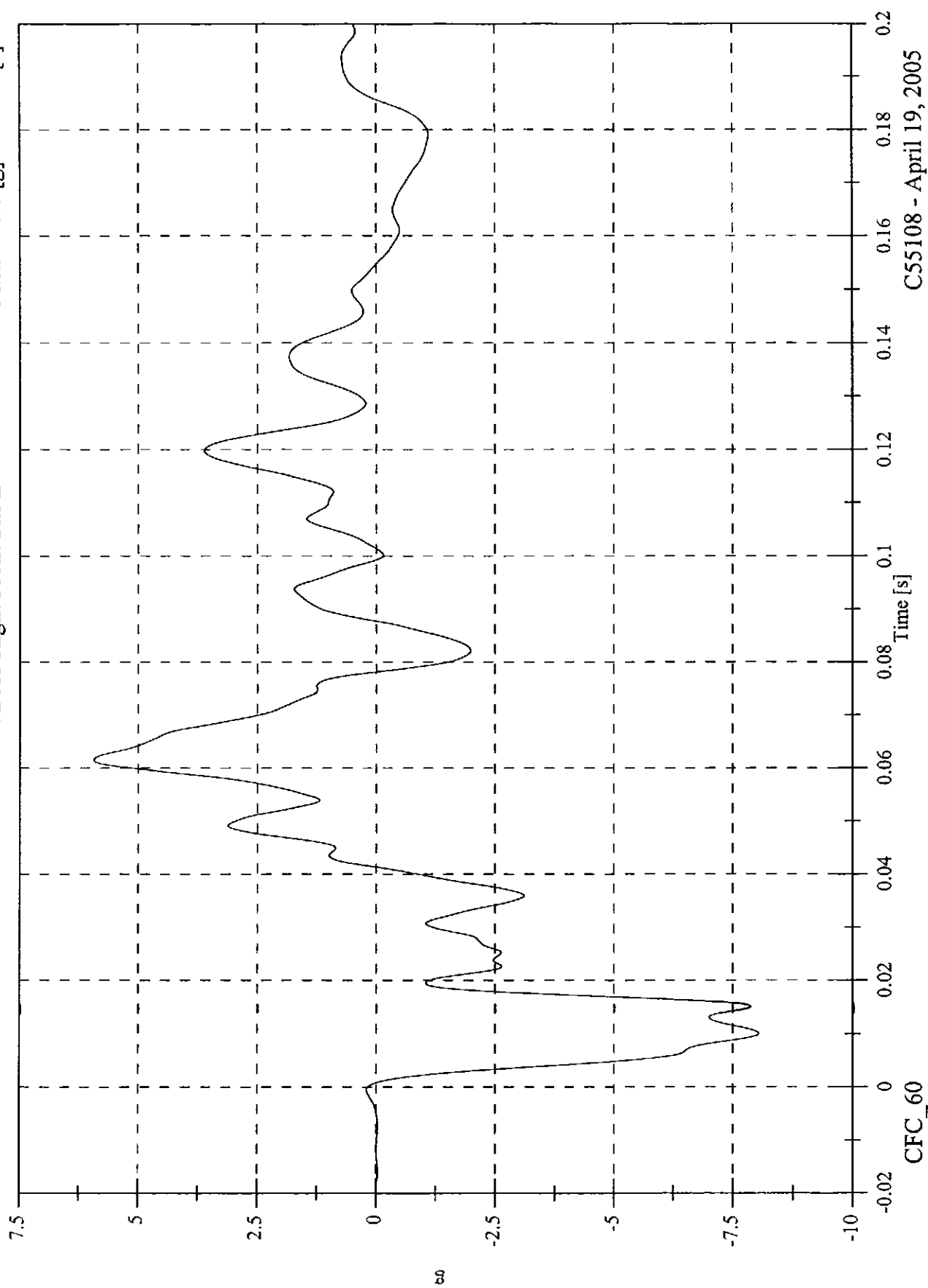
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A1 Right Front Sill Z

Max: 5.9 [g] at 0.061 [s]

Min: -8.0 [g] at 0.010 [s]

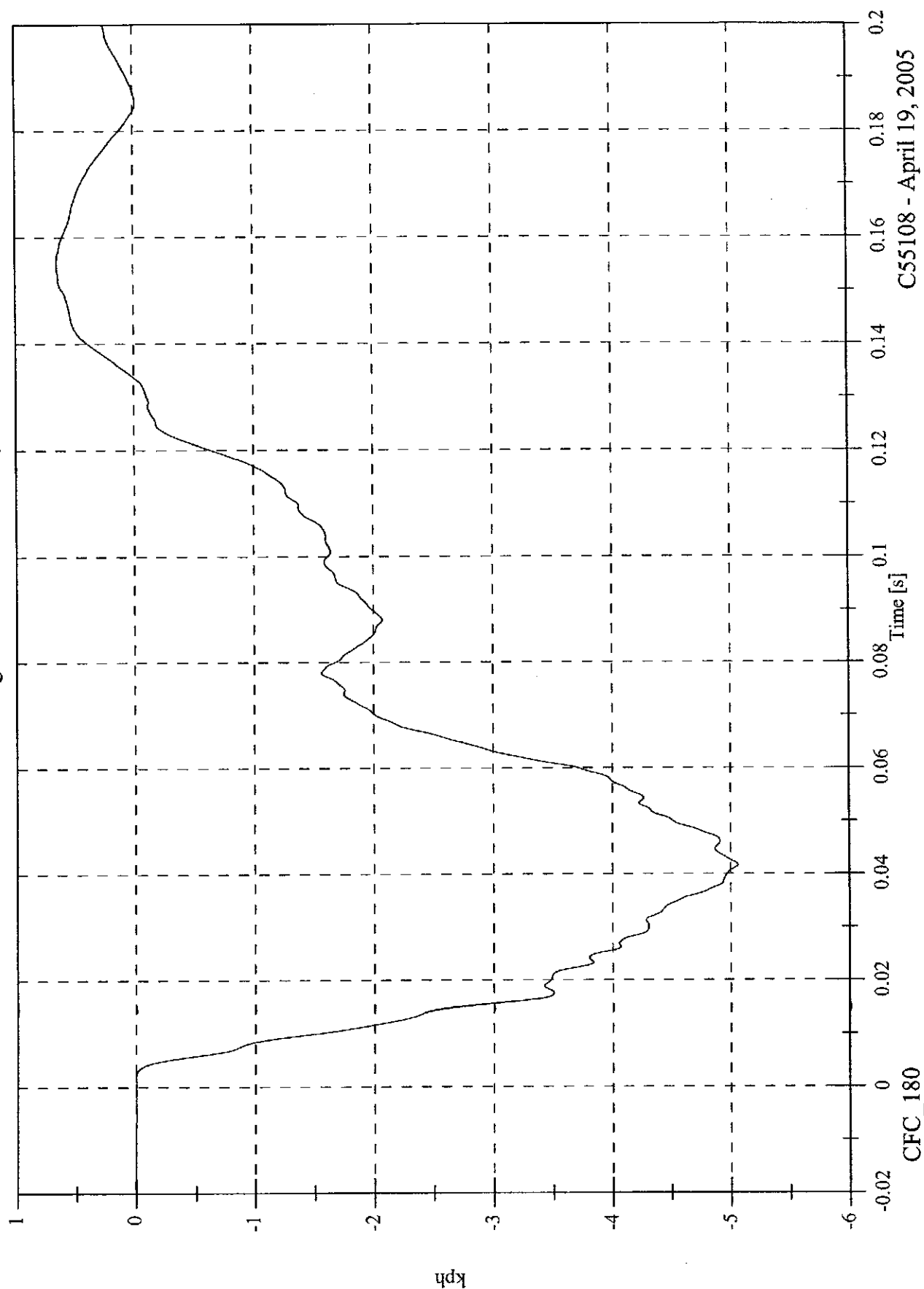


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A1 Right Front Sill Z Velocity

Max: 0.6 [kph] at 0.156 [s]
Min: -5.1 [kph] at 0.042 [s]

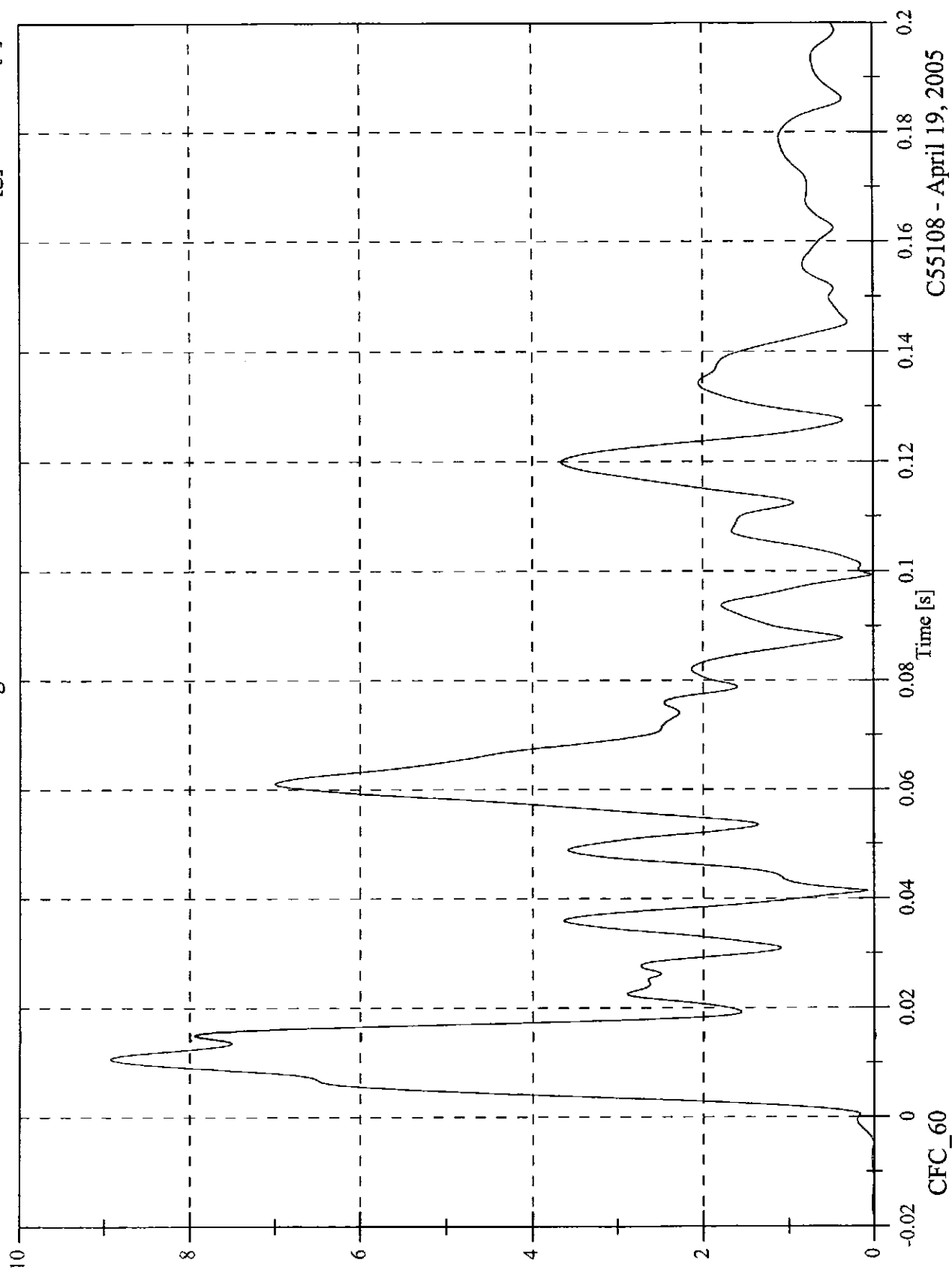


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 8.9 [g] at 0.011 [s]
Min: 0.0 [g] at -0.019 [s]

V2 A1 Right Front Sill Resultant

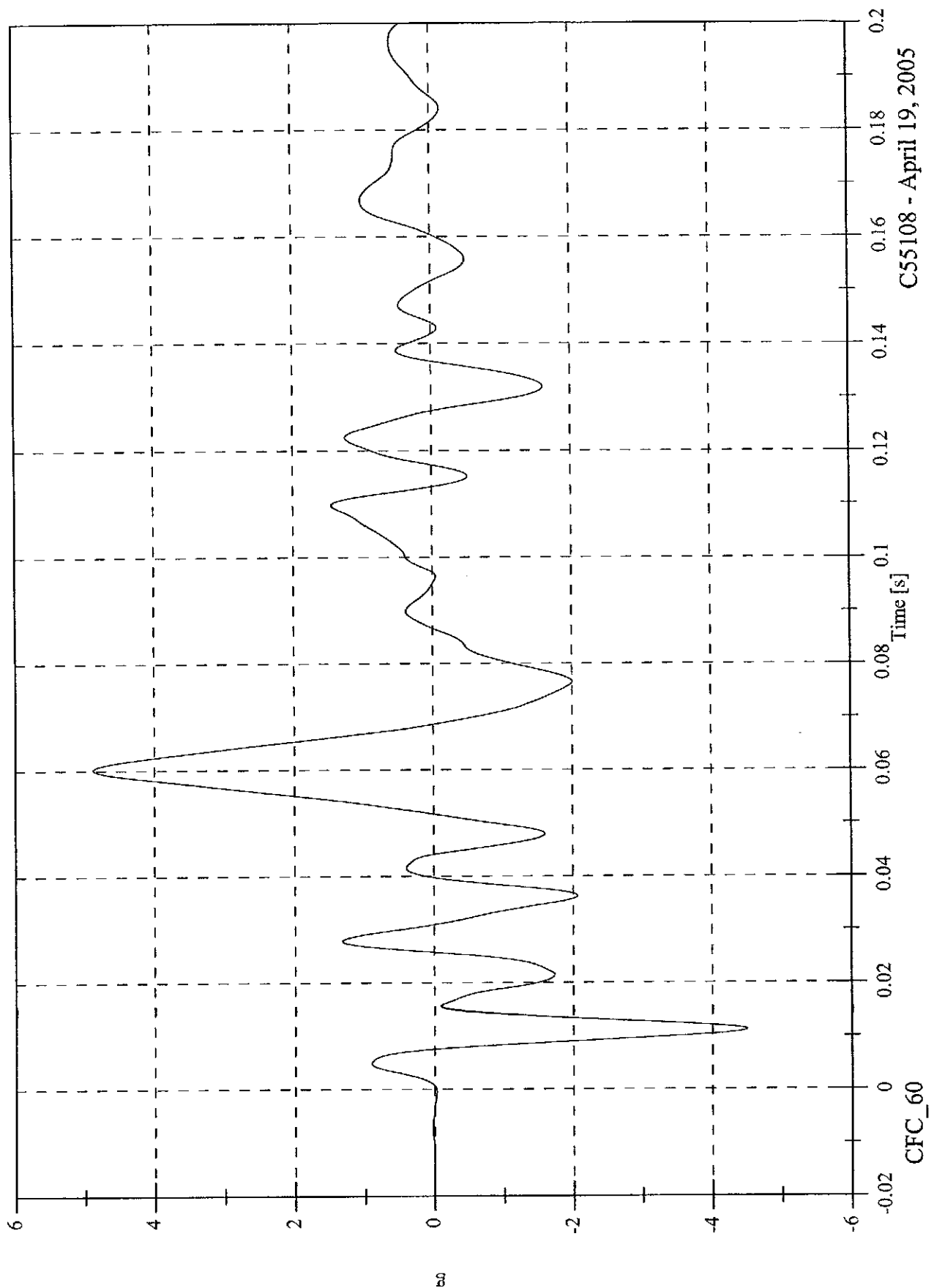


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A2 Right Rear Sill X

Max: 4.9 [g] at 0.060 [s]
Min: -4.5 [g] at 0.011 [s]

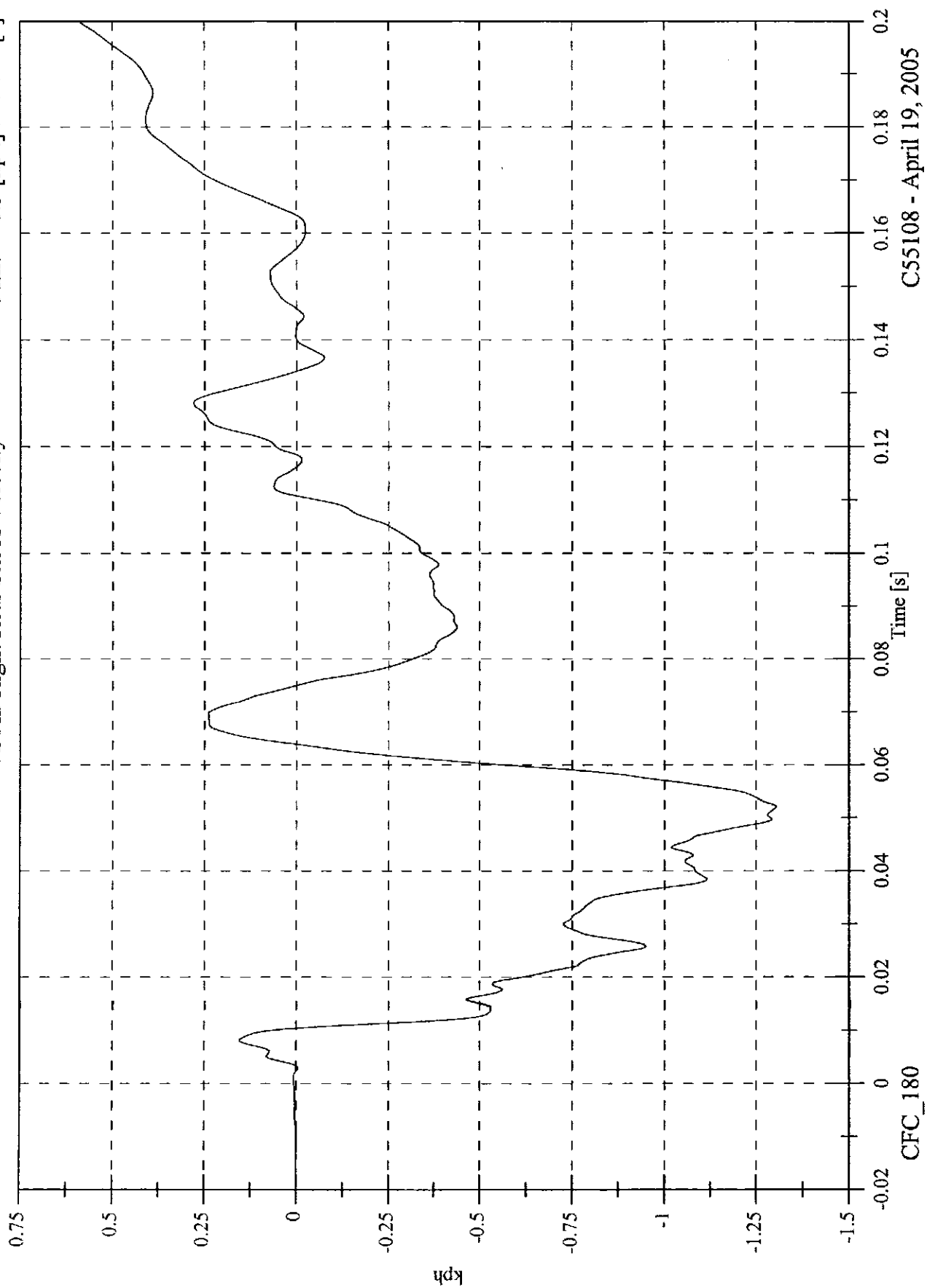


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 0.6 [kph] at 0.200 [s]
Min: -1.3 [kph] at 0.052 [s]

V2 A2 Right Rear Sill X Velocity



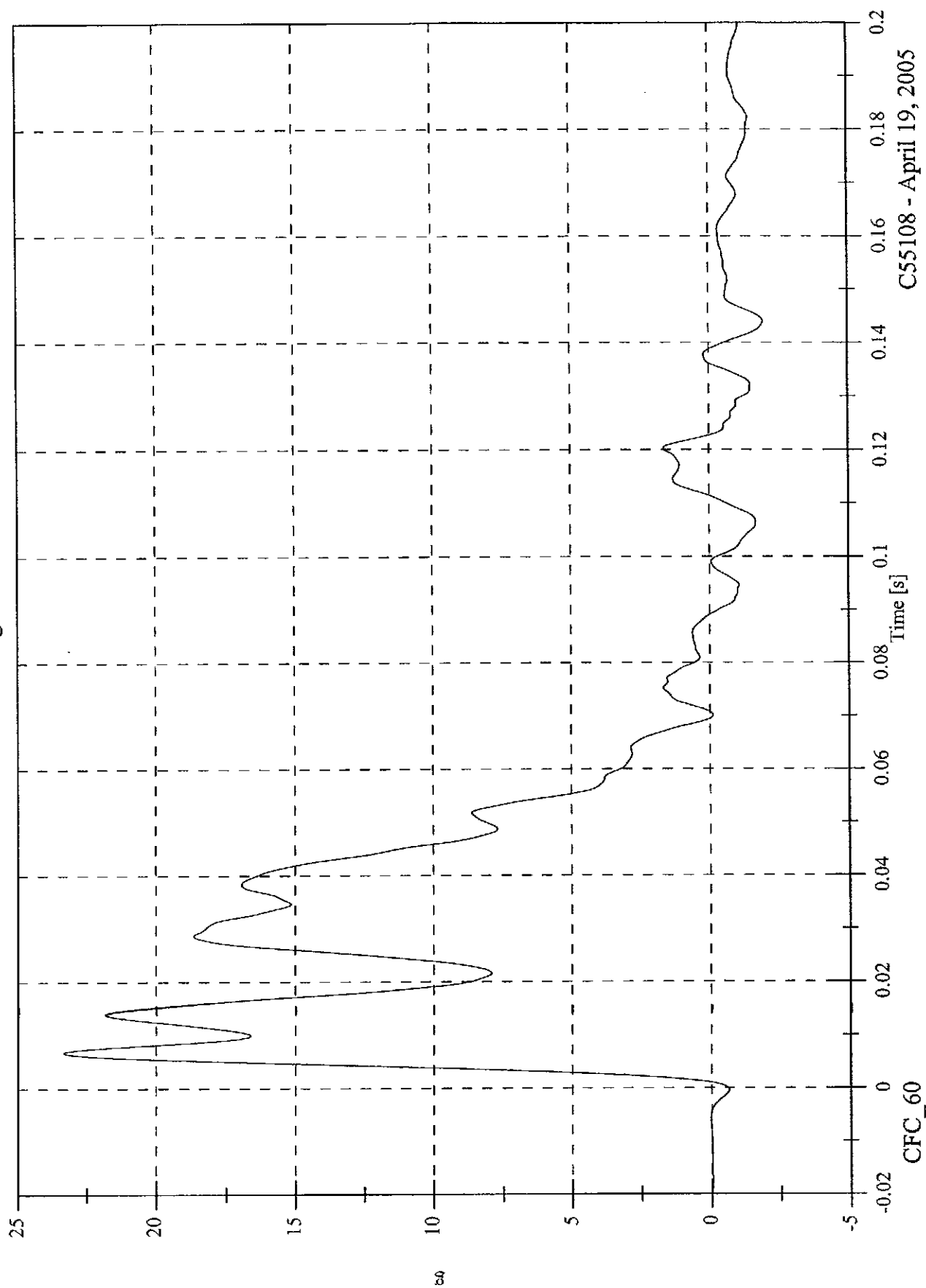
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A2 Right Rear Sill Y

Max: 23.4 [g] at 0.007 [s]

Min: -2.0 [g] at 0.144 [s]

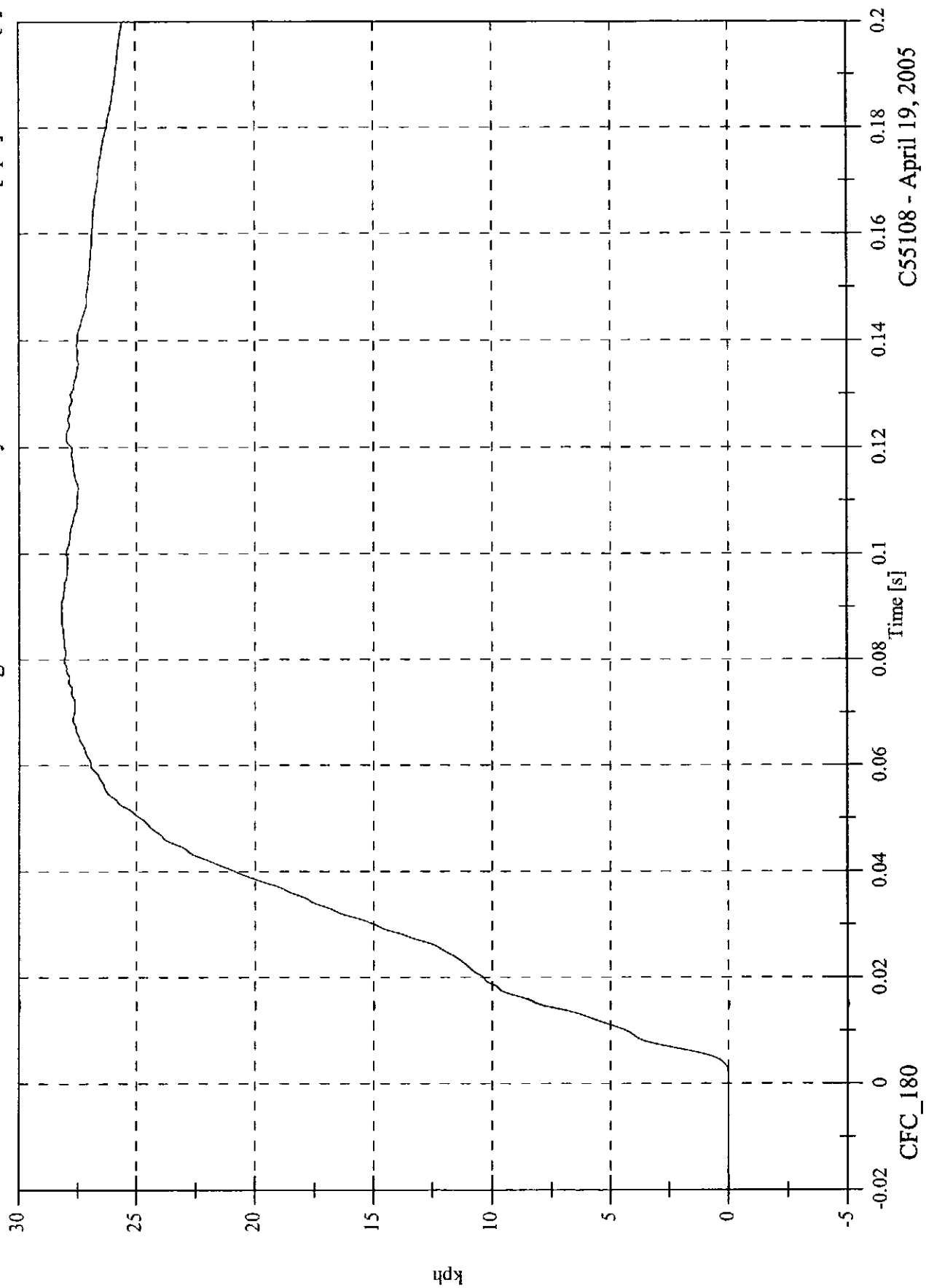


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 28.2 [kph] at 0.091 [s]
 Min: -0.0 [kph] at -0.005 [s]

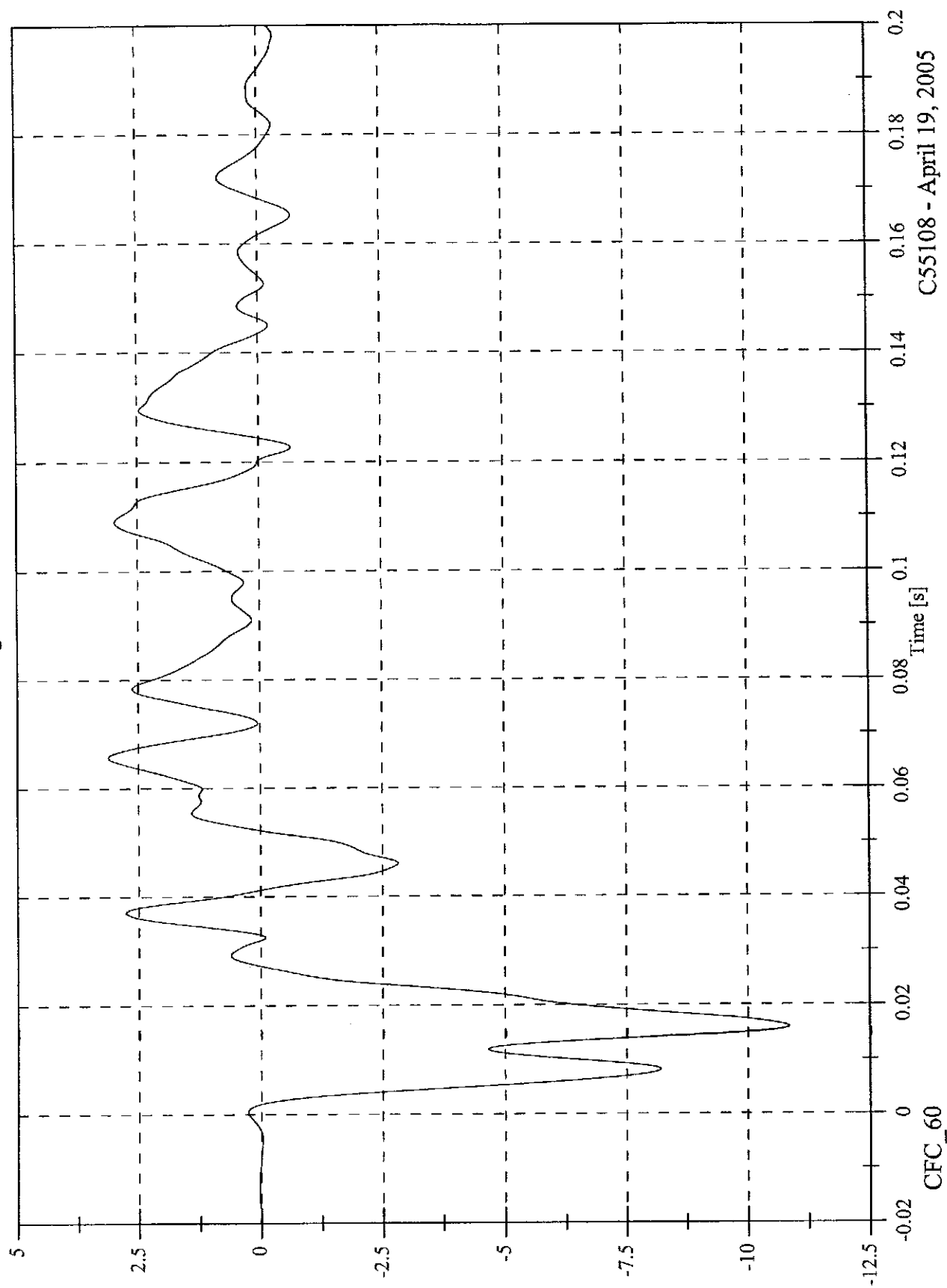
V2 A2 Right Rear Sill Y Velocity



C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon
V2 A2 Right Rear Sill Z

Max: 3.1 [g] at 0.066 [s]
Min: -10.8 [g] at 0.016 [s]

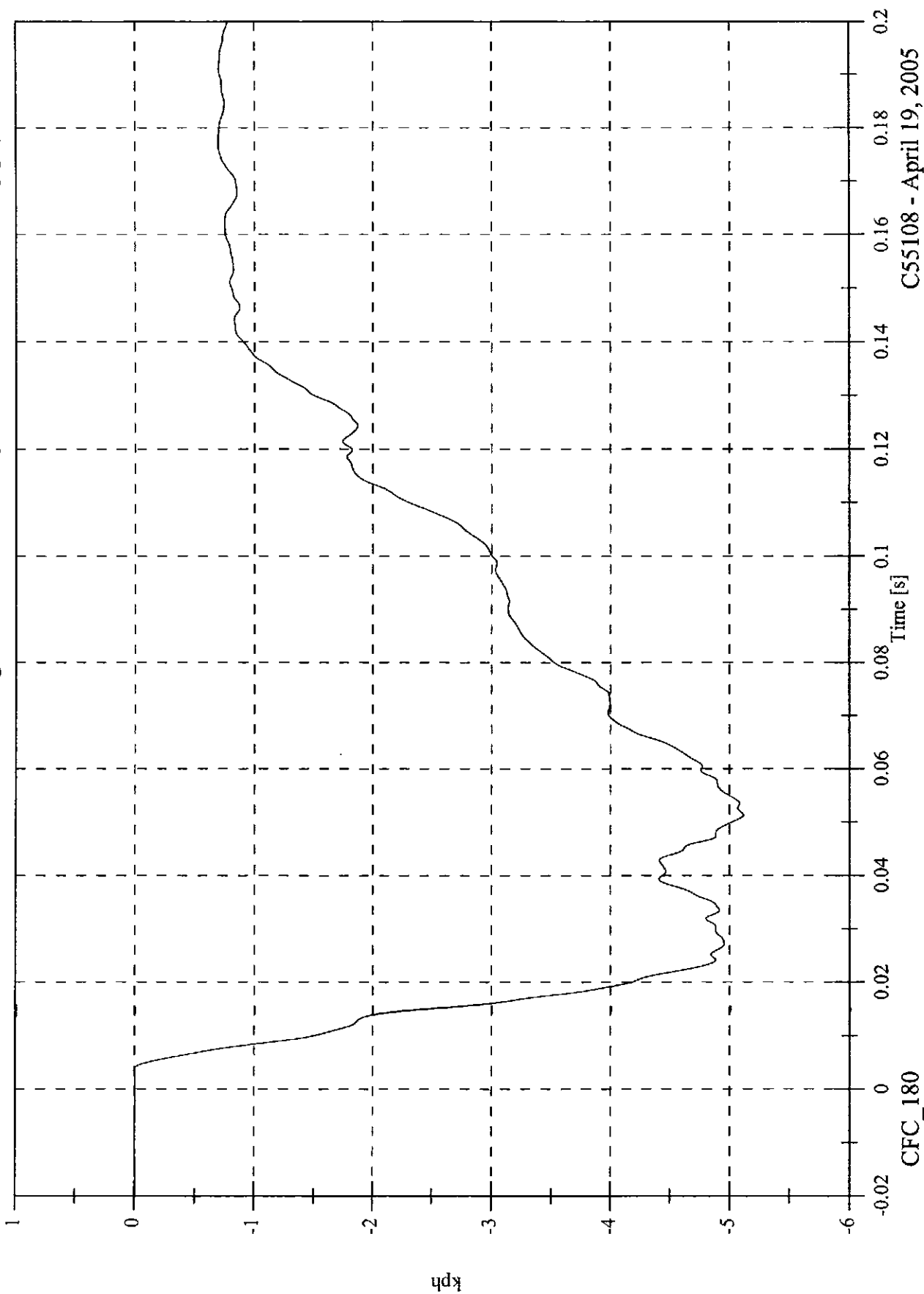


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 0.0 [kph] at 0.004 [s]
 Min: -5.1 [kph] at 0.051 [s]

V2 A2 Right Rear Sill Z Velocity

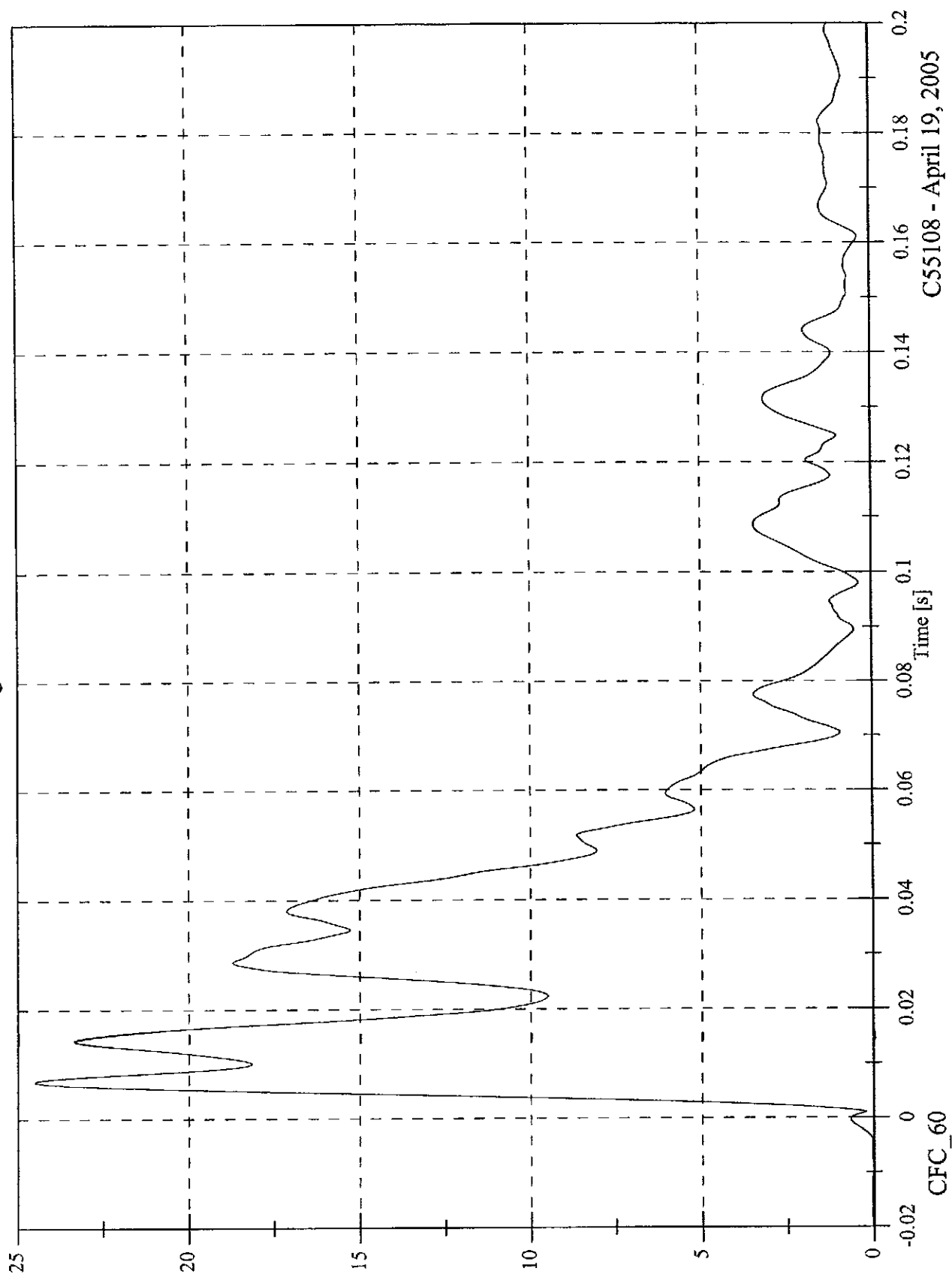


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2 A2 Right Rear Sill Resultant

Max: 24.5 [g] at 0.007 [s]
Min: 0.0 [g] at -0.010 [s]

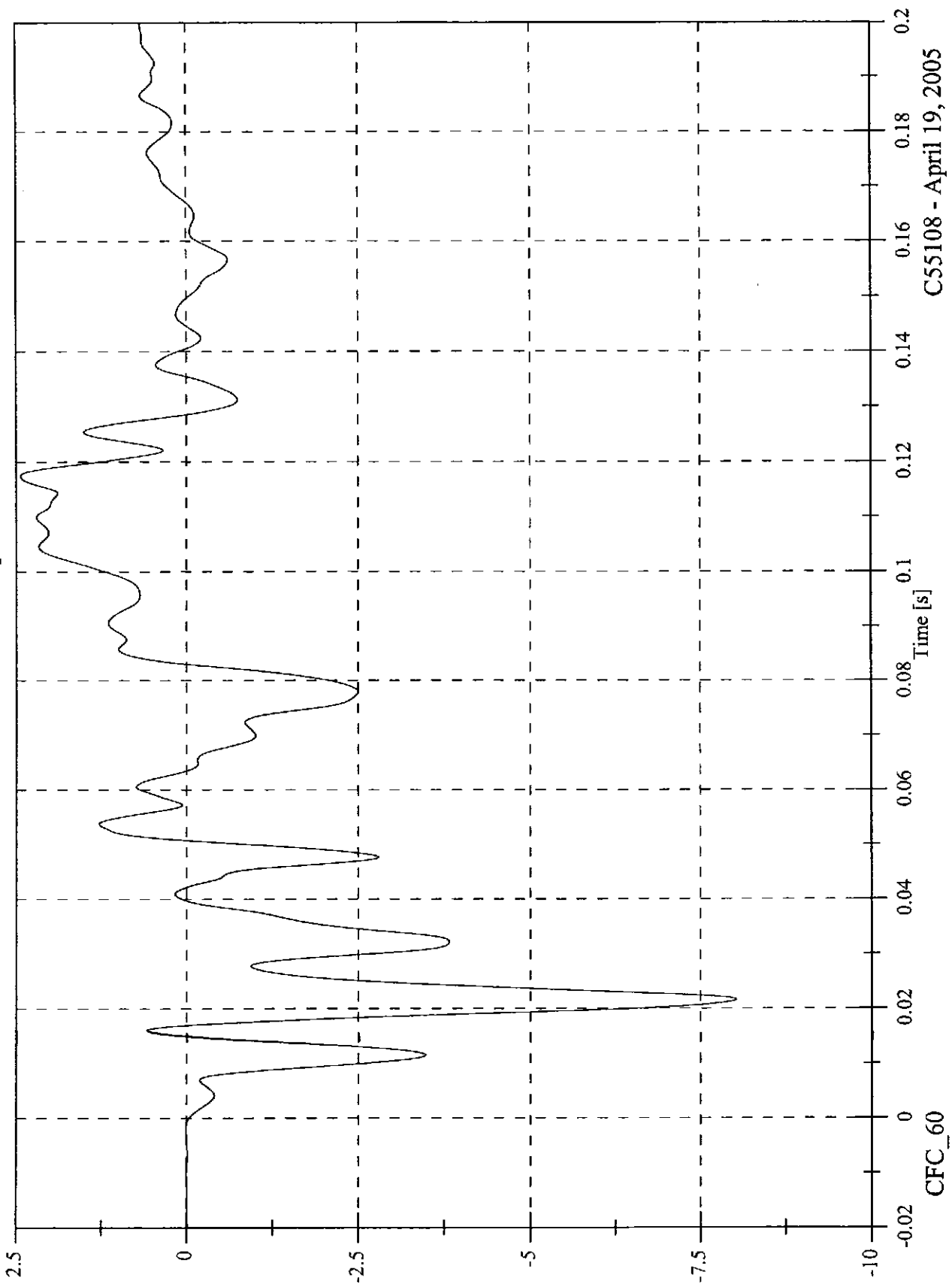


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A3 Rear Floorpan X

Max: 2.4 [g] at 0.117 [s]
Min: -8.0 [g] at 0.022 [s]

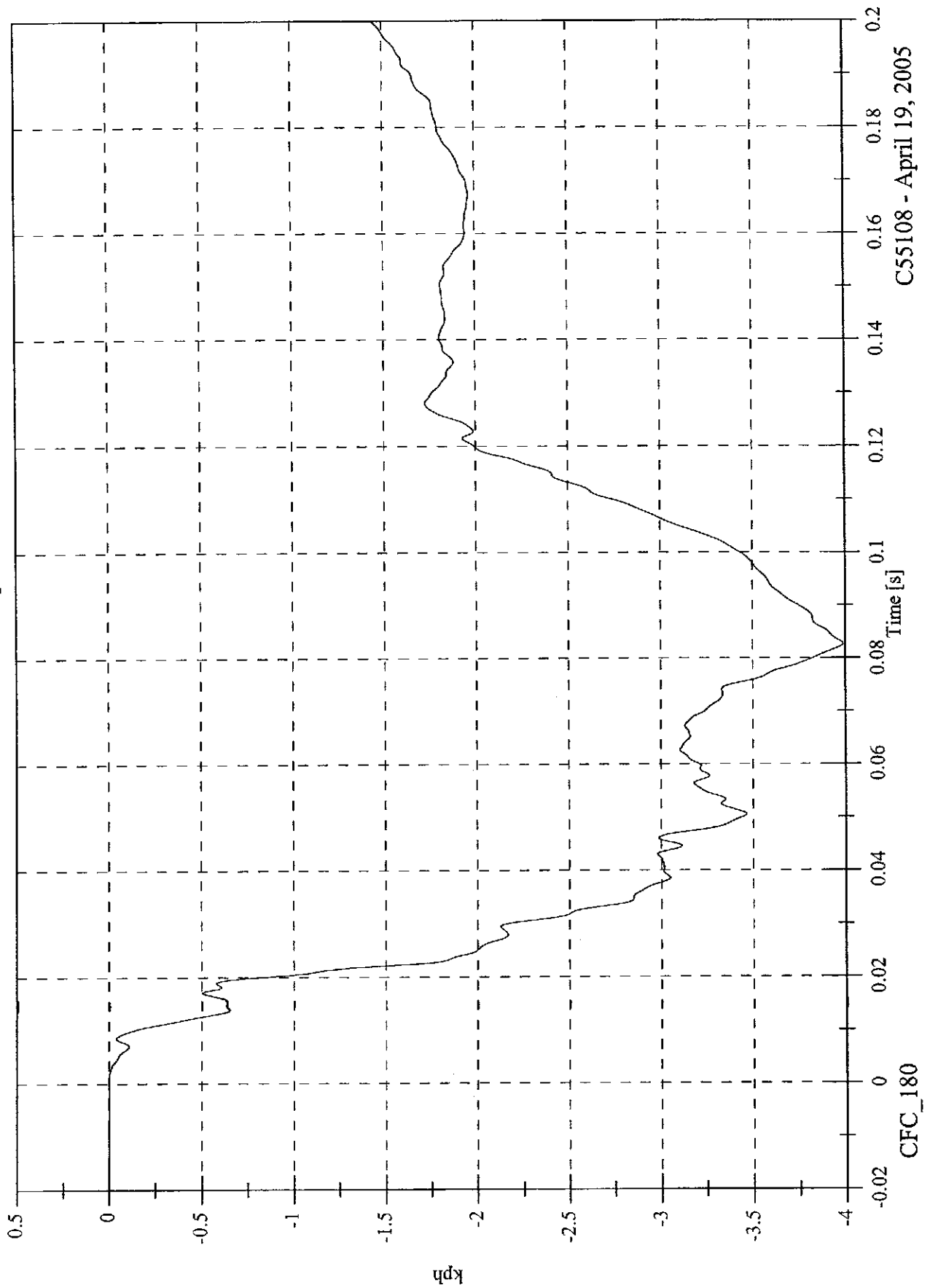


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A3 Rear Floorpan X Velocity

Max: 0.0 [kph] at -0.008 [s]
Min: -4.0 [kph] at 0.083 [s]

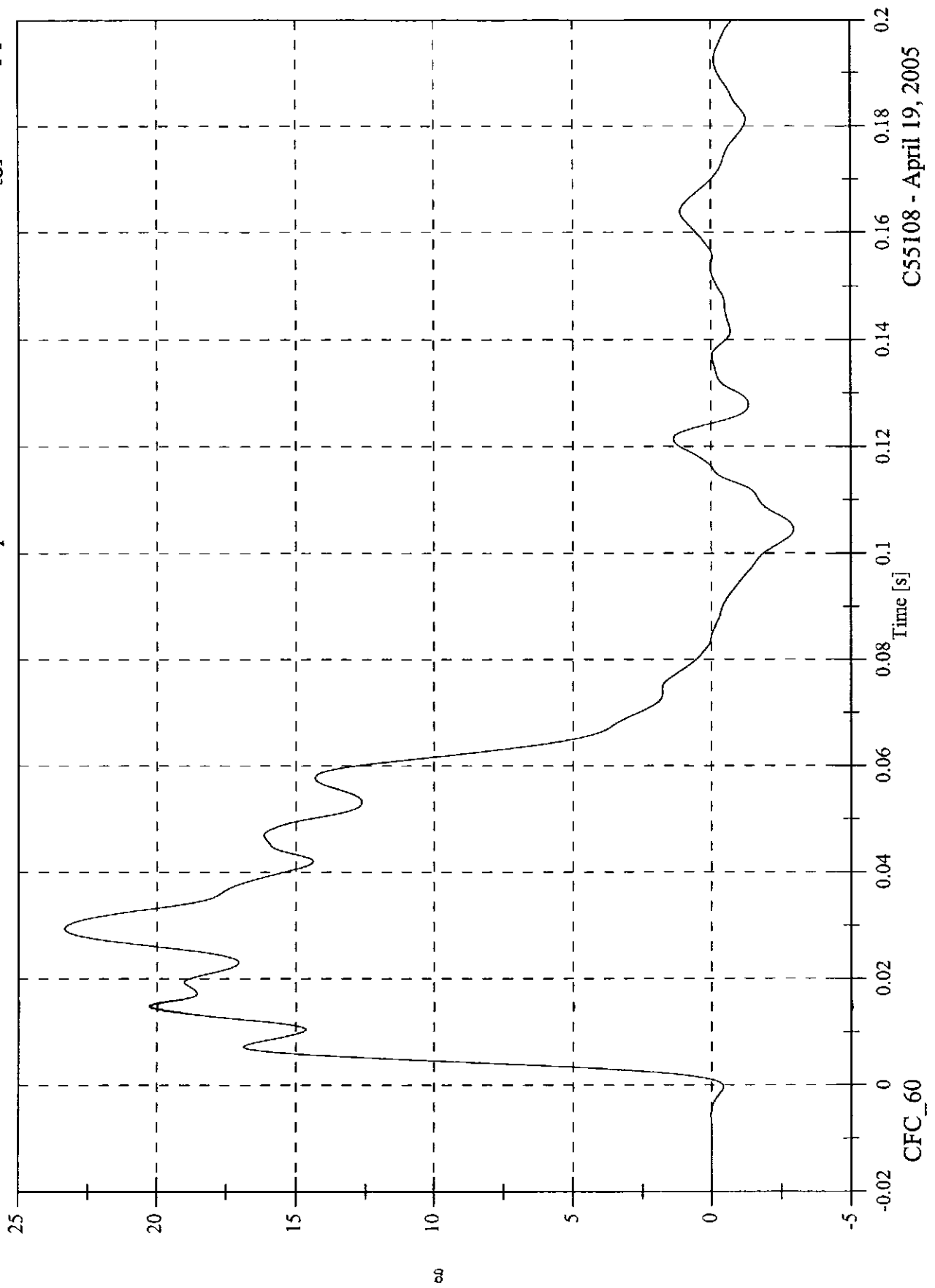


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 23.3 [g] at 0.029 [s]
Min: -3.0 [g] at 0.104 [s]

V2 A3 Rear Floorpan Y

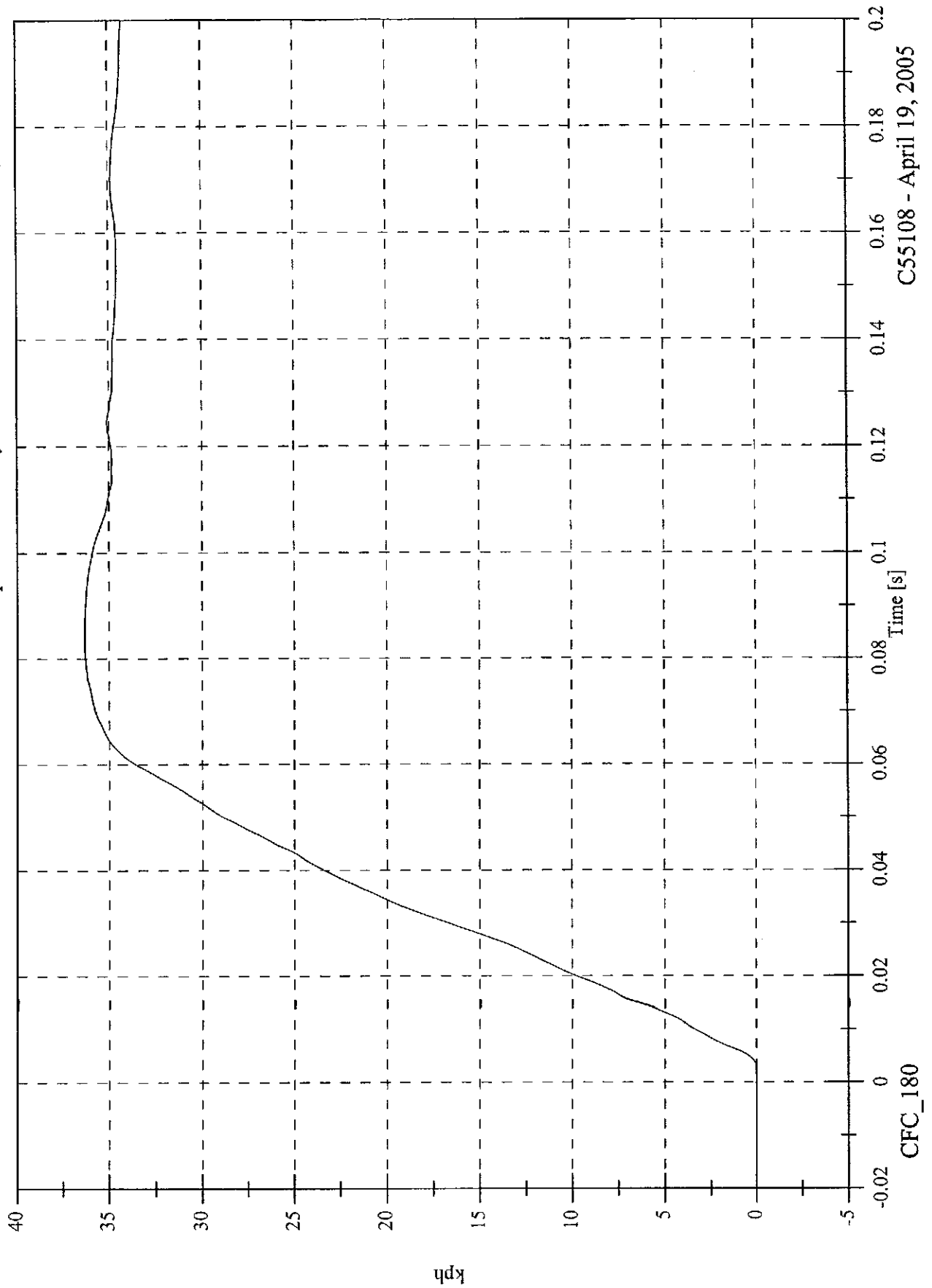


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2 A3 Rear Floorpan Y Velocity

Max: 36.3 [kph] at 0.085 [s]
Min: -0.0 [kph] at -0.017 [s]

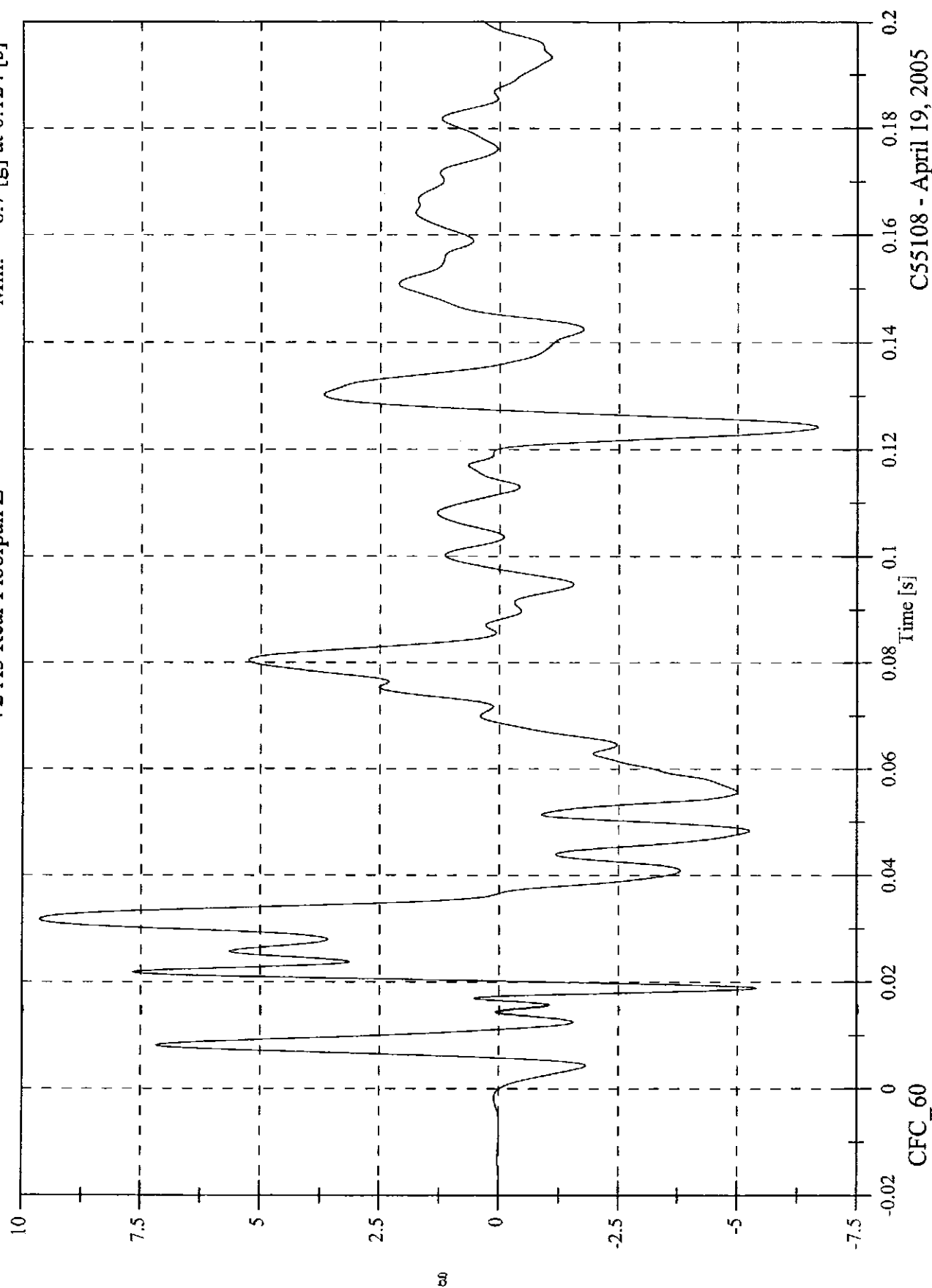


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A3 Rear Floorpan Z

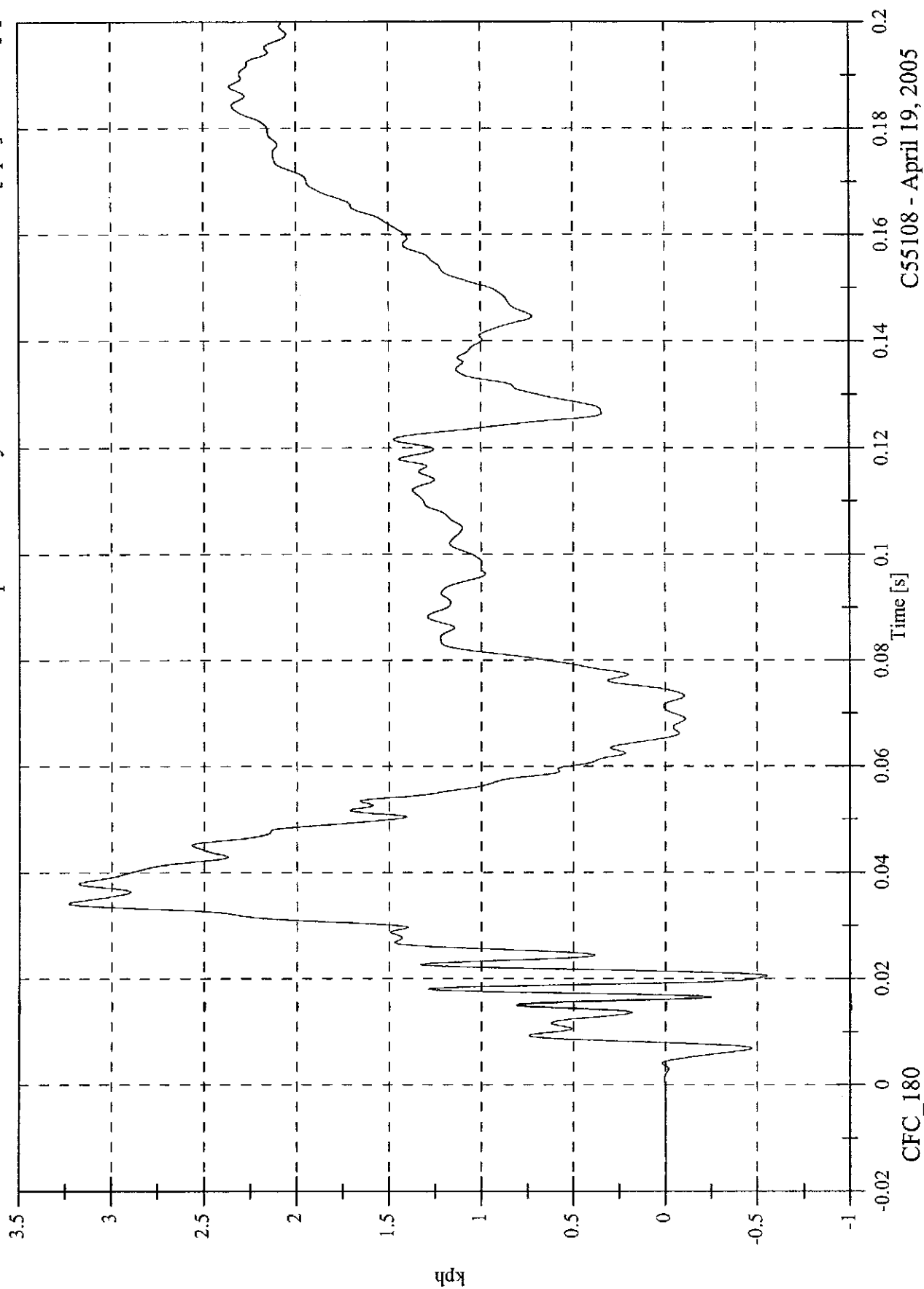
Max: 9.6 [g] at 0.032 [s]
Min: -6.7 [g] at 0.124 [s]



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2 A3 Rear Floorpan Z Velocity

Max: 3.2 [kph] at 0.034 [s]
Min: -0.6 [kph] at 0.020 [s]

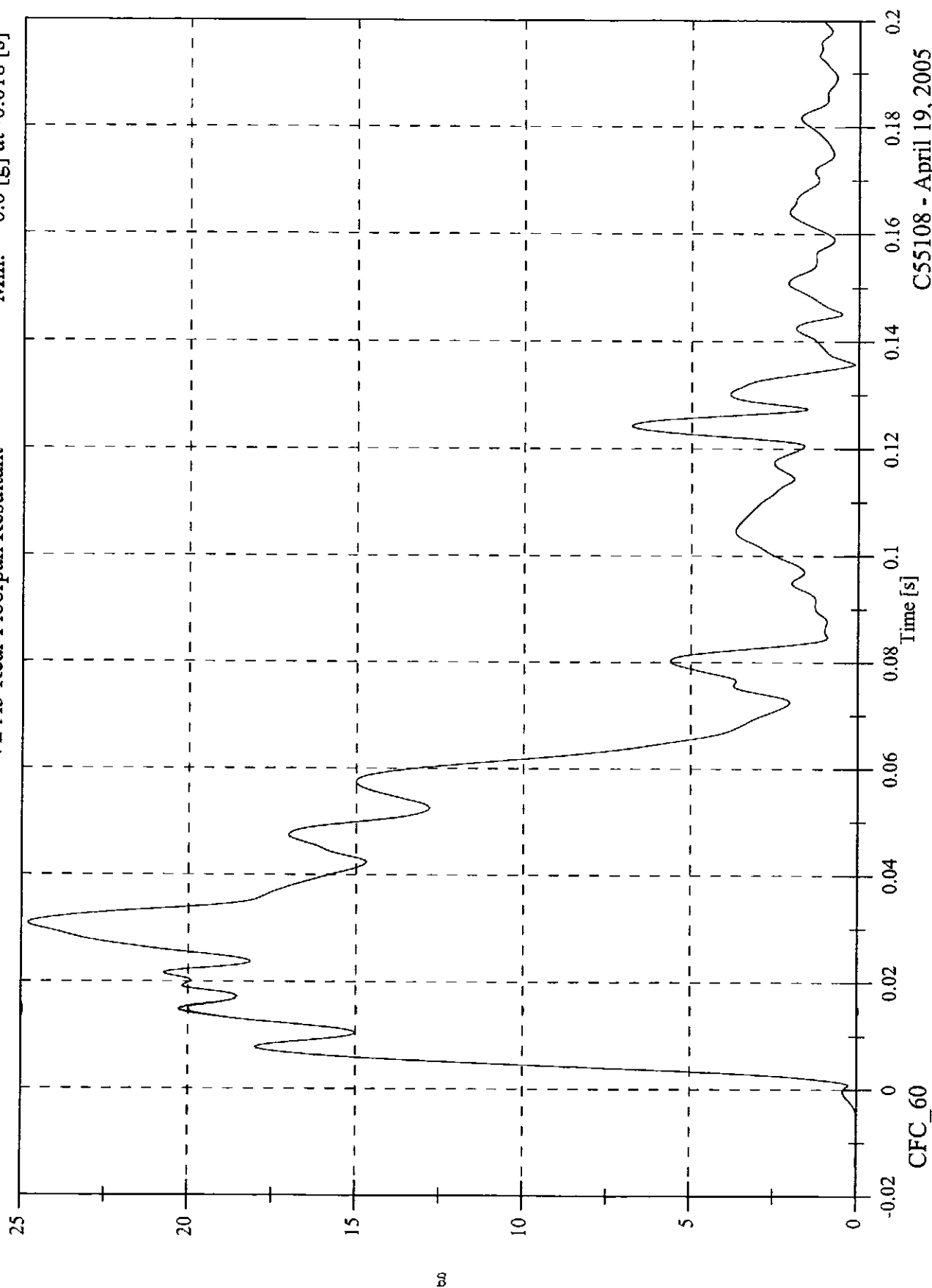


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

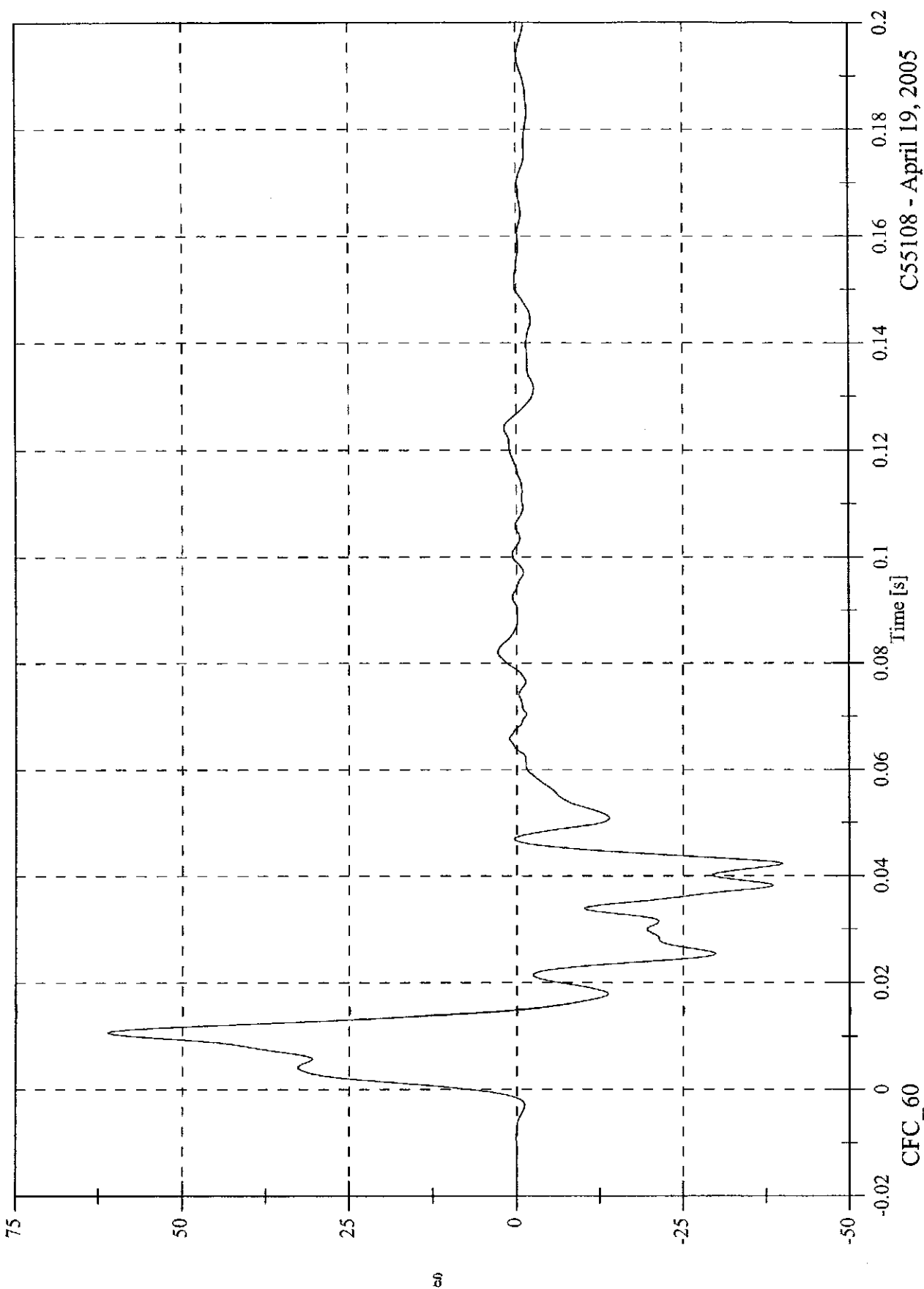
V2 A3 Rear Floorpan Resultant

Max: 24.8 [g] at 0.031 [s]
Min: 0.0 [g] at -0.018 [s]



2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2 A4 Left Rear Sill Y

Max: 61.0 [g] at 0.011 [s]
Min: -39.9 [g] at 0.042 [s]

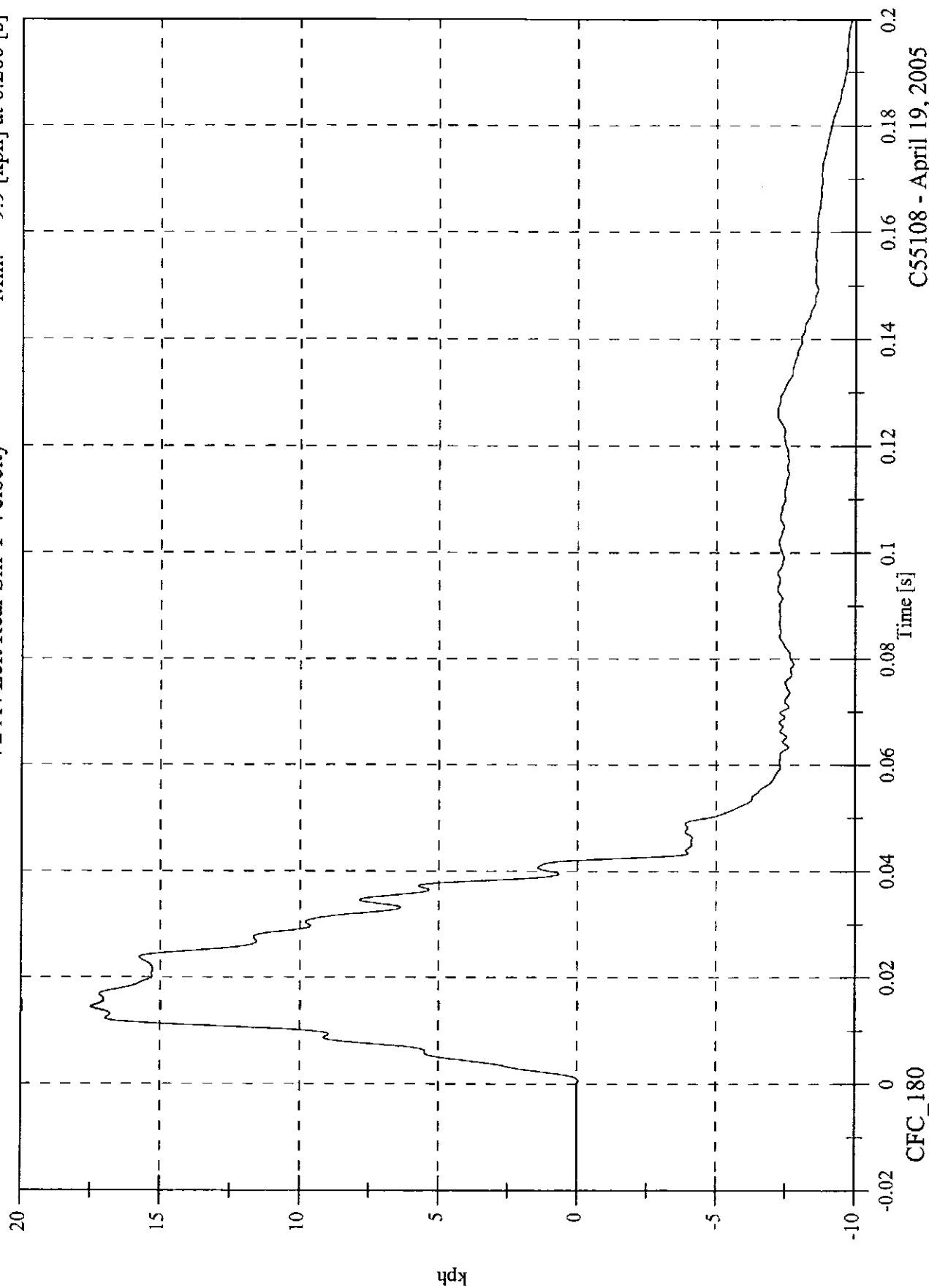


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A4 Left Rear Sill Y Velocity

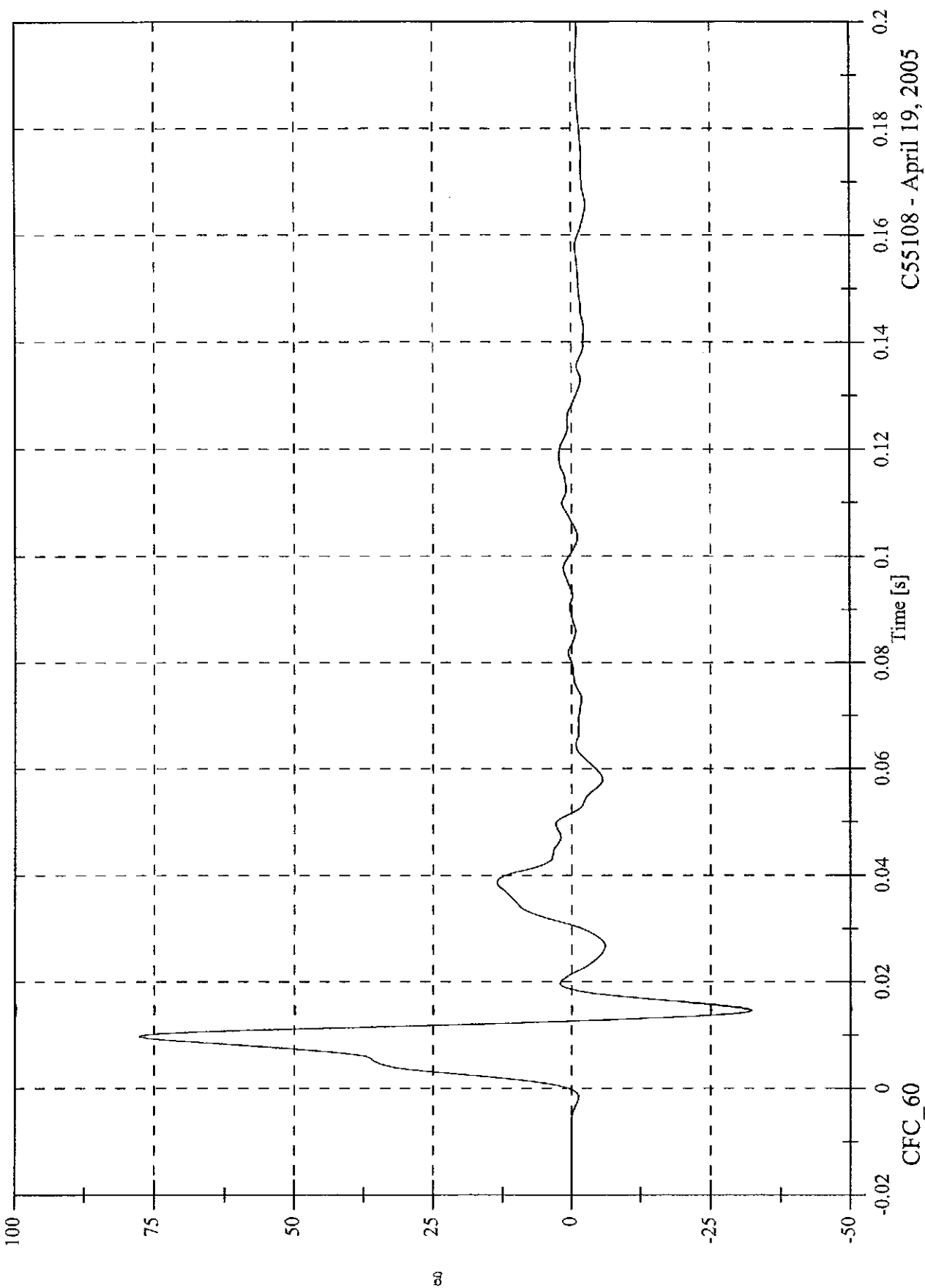
Max: 17.5 [kph] at 0.014 [s]
Min: -9.9 [kph] at 0.200 [s]



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2 A5 Left Front Sill Y

Max: 77.5 [g] at 0.010 [s]
Min: -32.1 [g] at 0.015 [s]

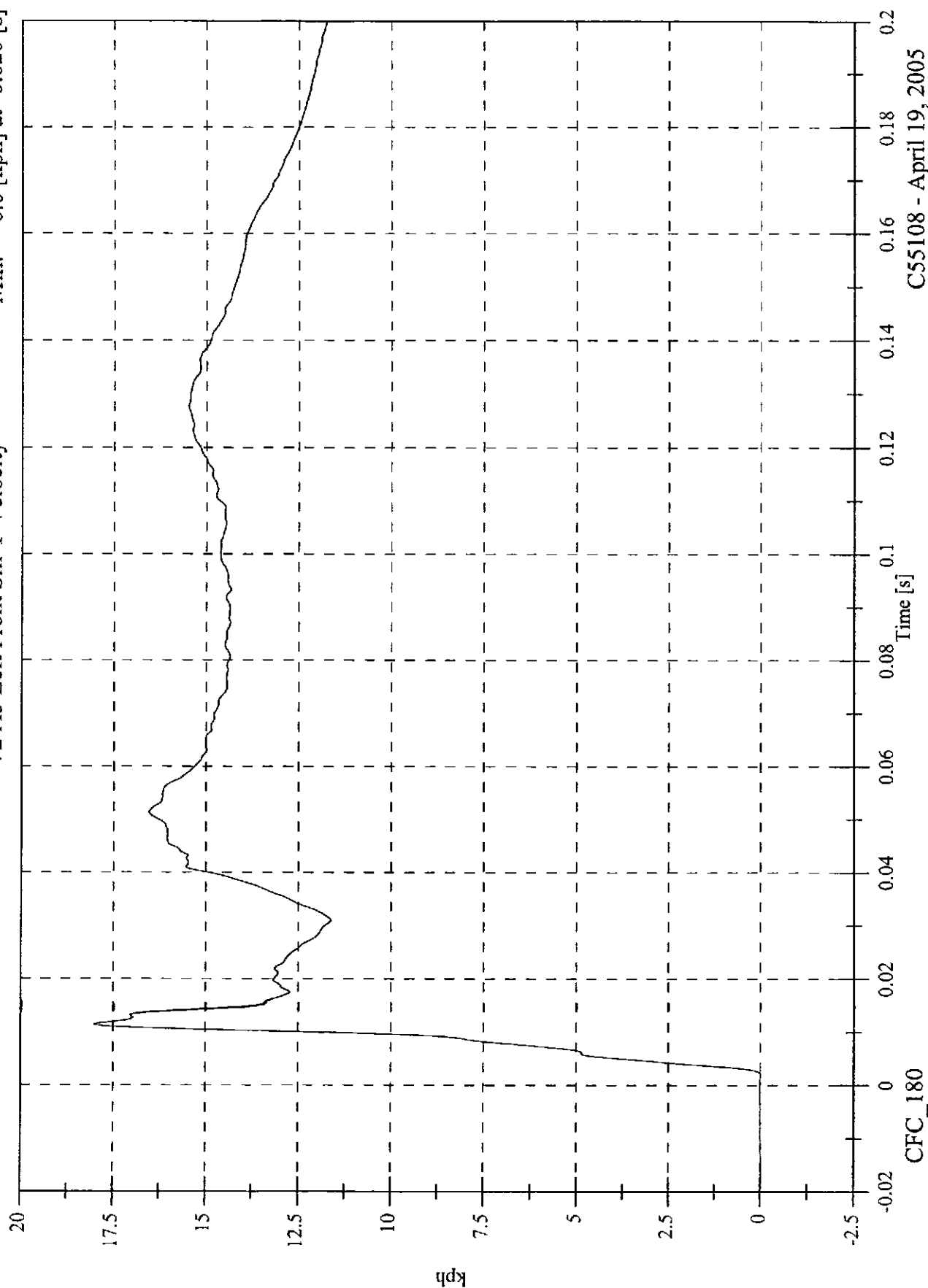


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A5 Left Front Sill Y Velocity

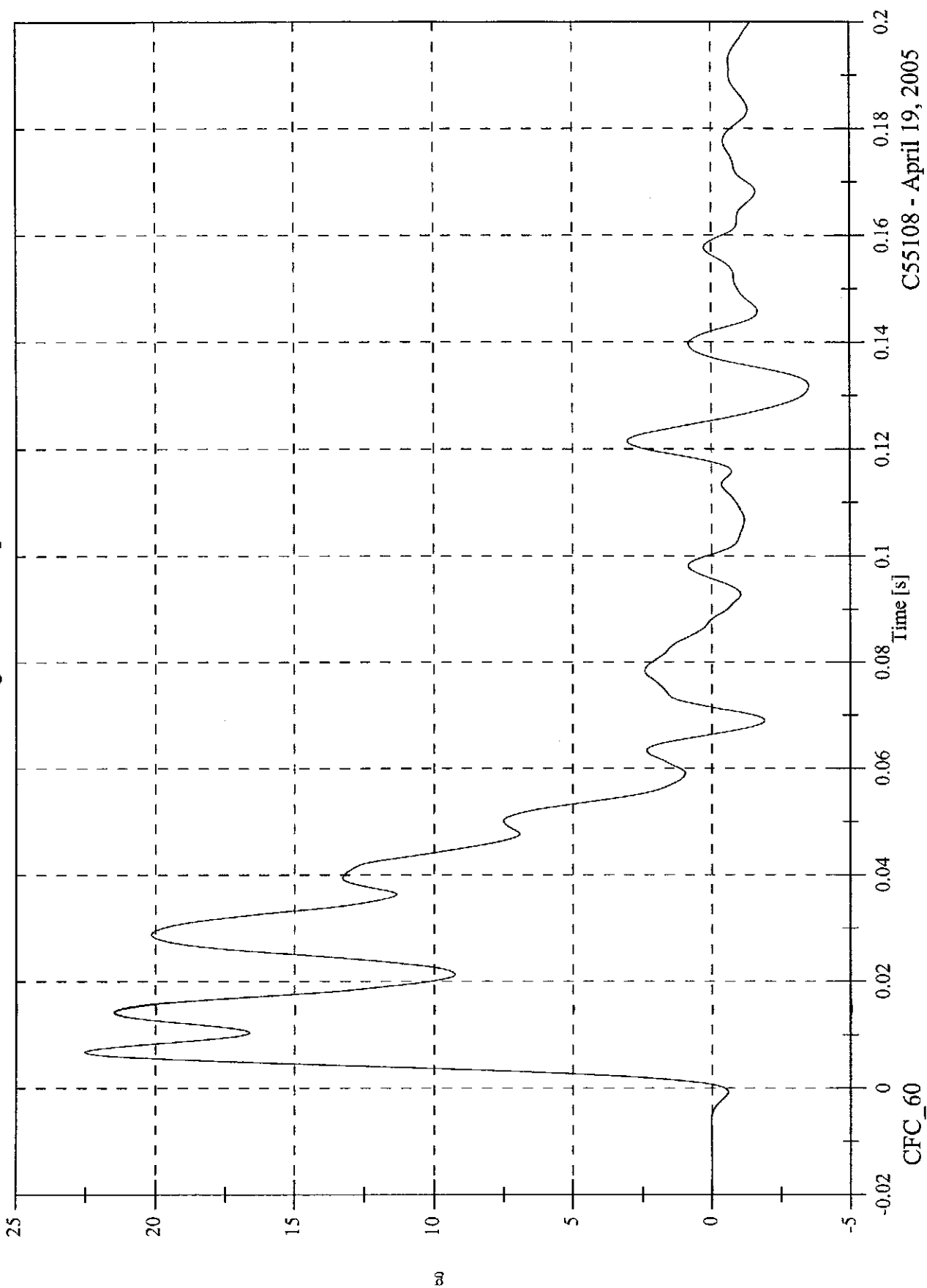
Max: 18.0 [kph] at 0.011 [s]
Min: -0.0 [kph] at -0.020 [s]



C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon
V2 A7 Right Rear Compartment Y

Max: 22.5 [g] at 0.007 [s]
Min: -3.5 [g] at 0.132 [s]

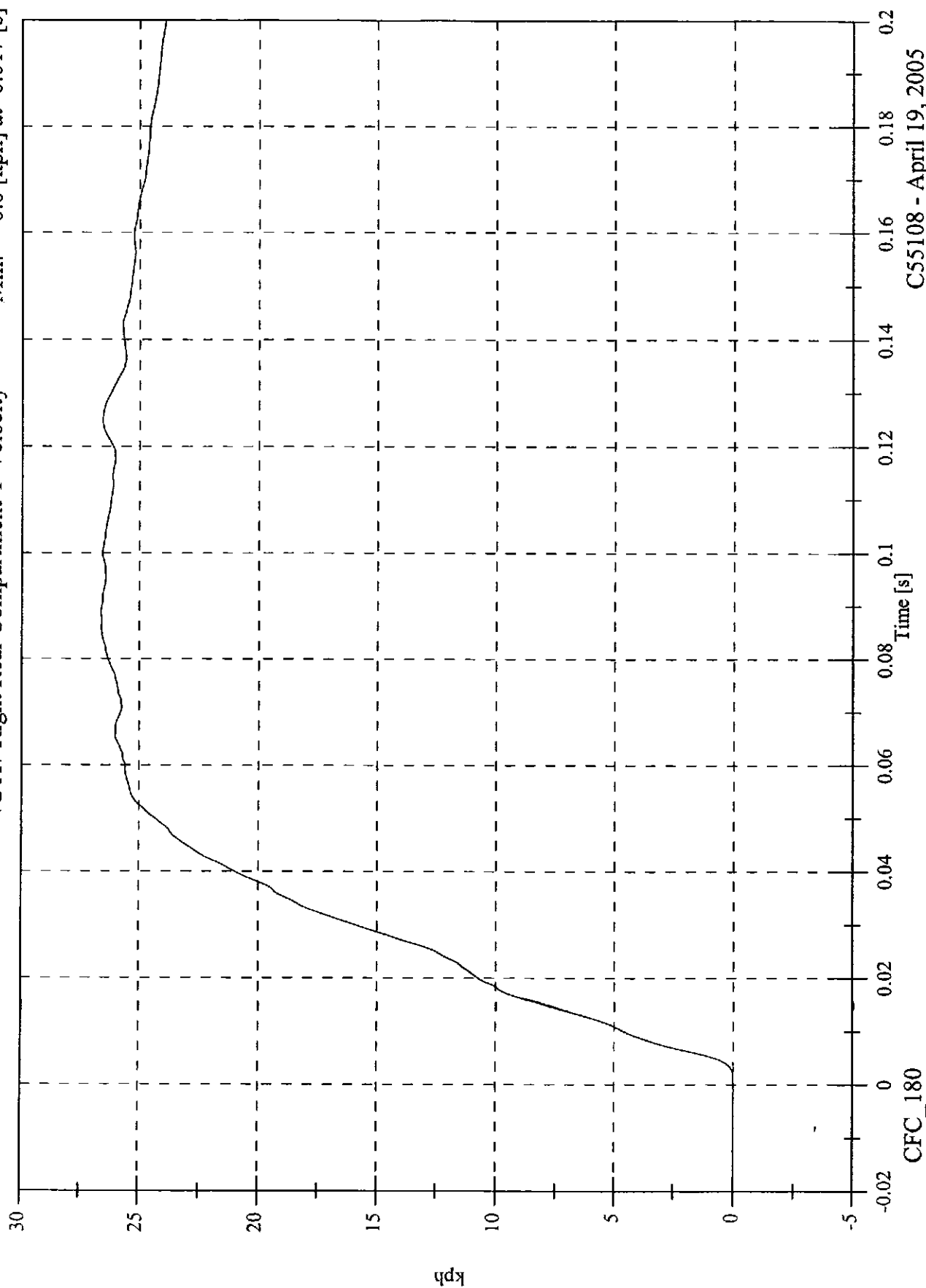


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 26.6 [kph] at 0.089 [s]
Min: -0.0 [kph] at -0.017 [s]

V2 A7 Right Rear Compartment Y Velocity



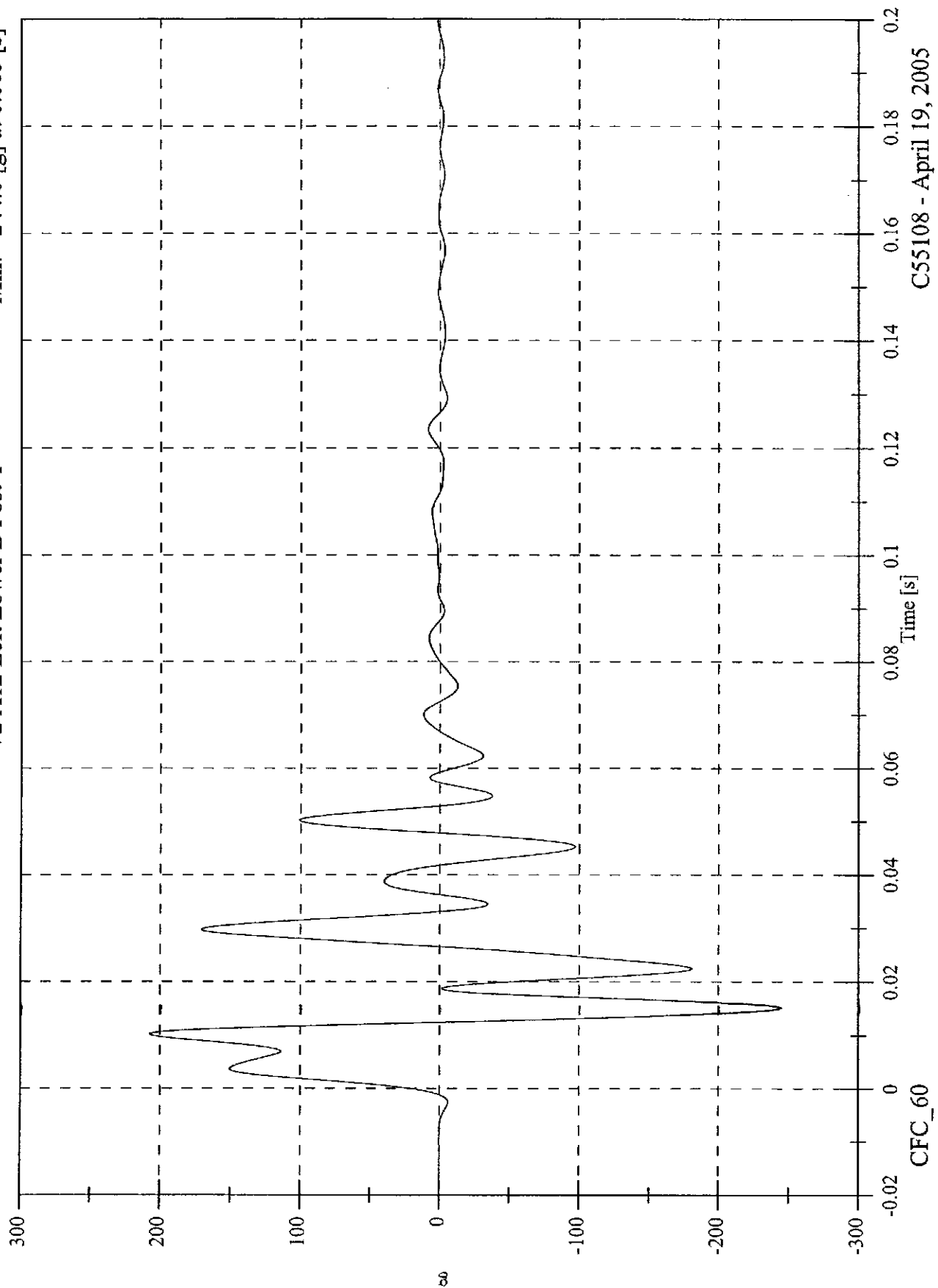
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V2 A12 Left Lower B Post Y

Max: 207.2 [g] at 0.010 [s]

Min: -244.0 [g] at 0.015 [s]

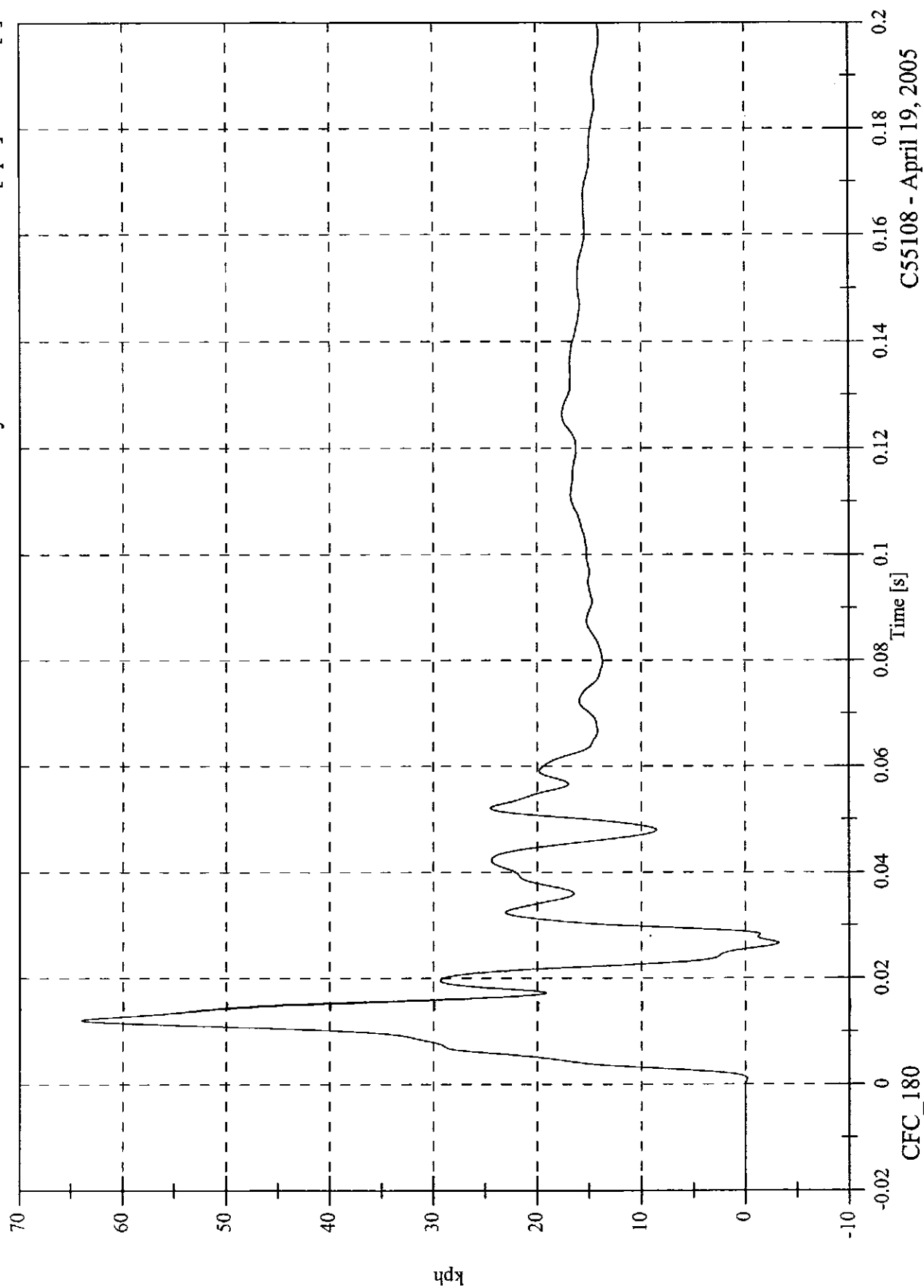


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 64.0 [kph] at 0.012 [s]
Min: -3.2 [kph] at 0.027 [s]

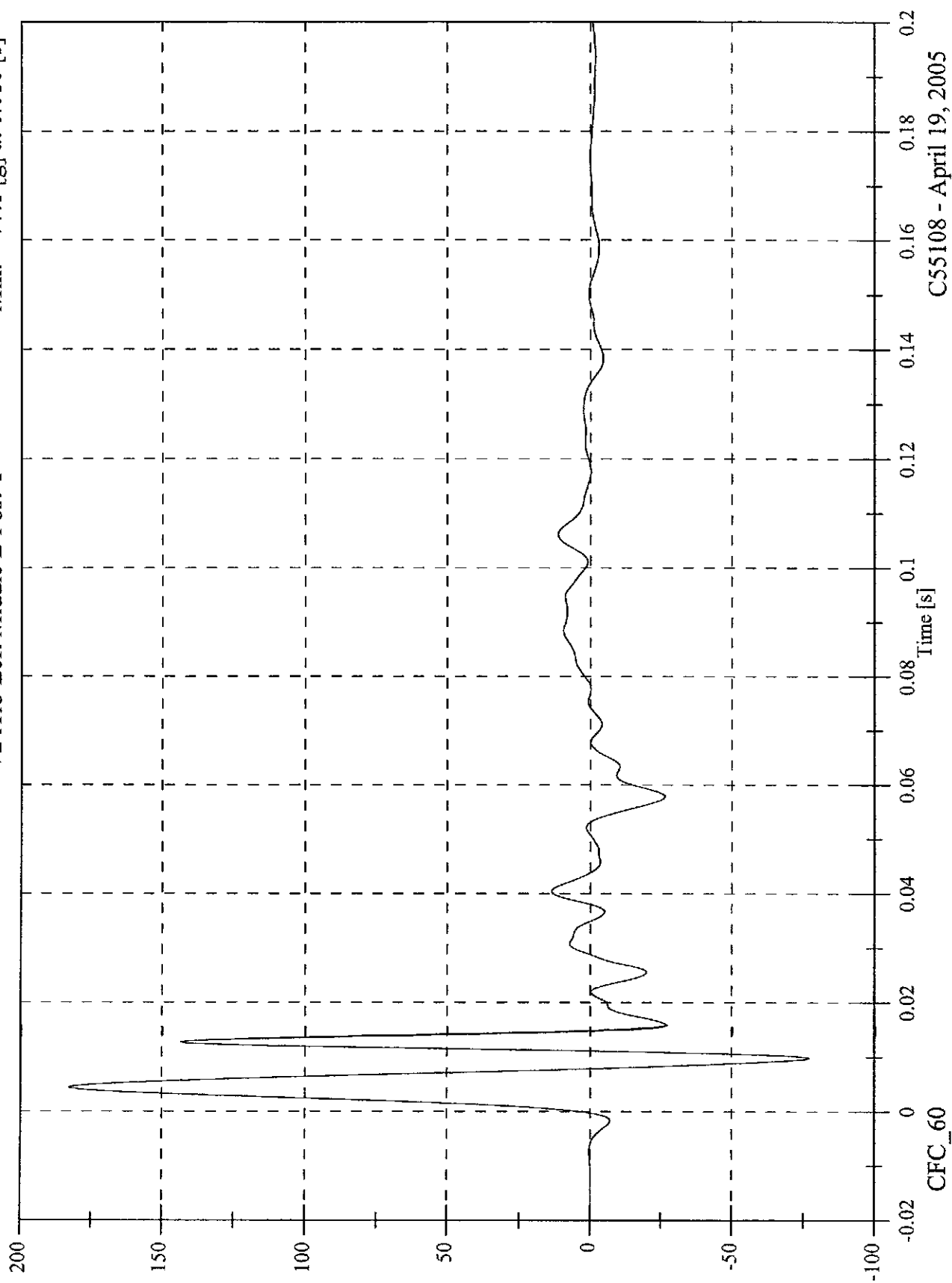
V2 A12 Left Lower B Post Y Velocity



C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon
V2 A13 Left Middle B Post Y

Max: 182.7 [g] at 0.004 [s]
Min: -77.1 [g] at 0.010 [s]



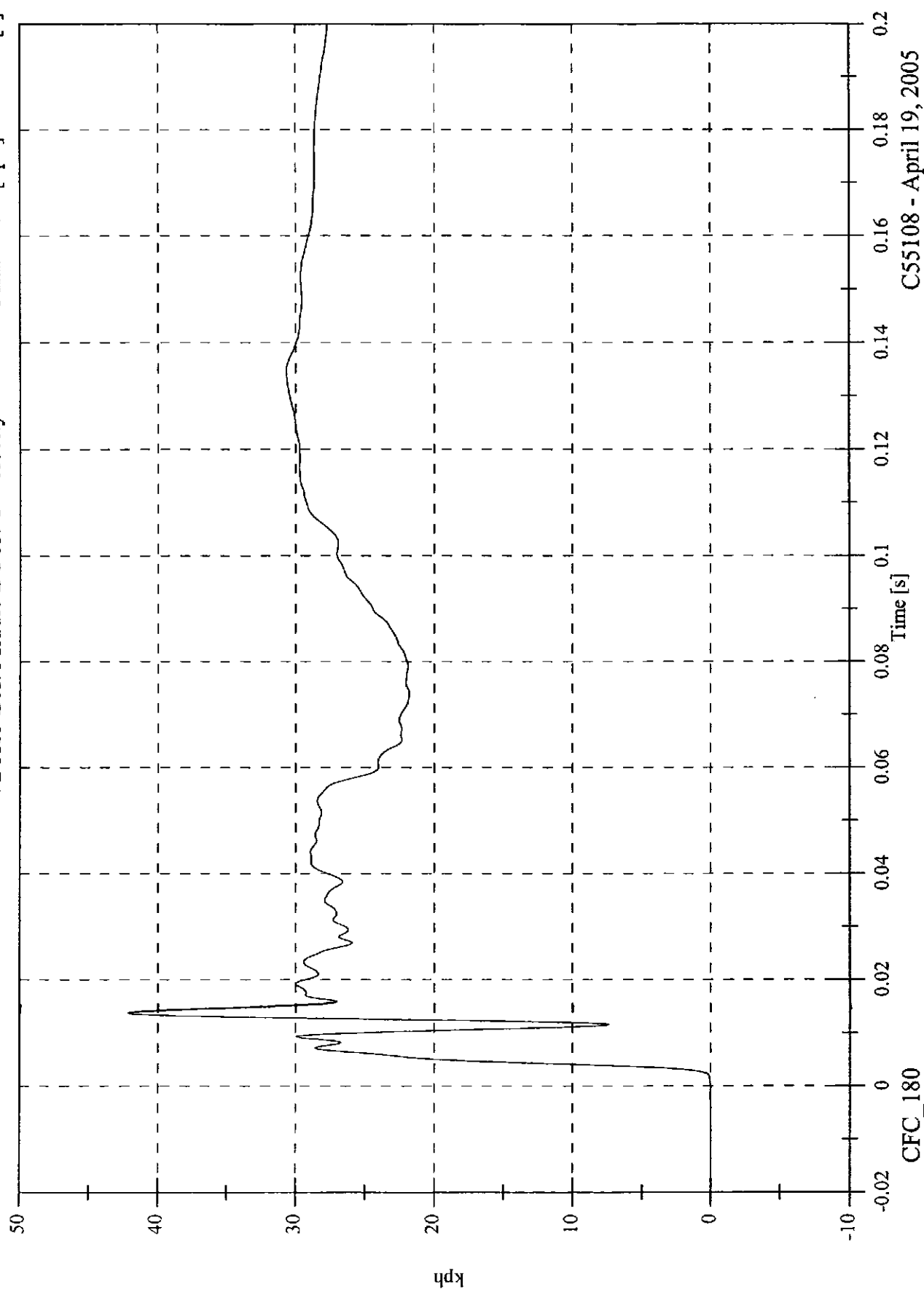
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 42.1 [kph] at 0.014 [s]

V2 A13 Left Middle B Post Y Velocity

Min: -0.0 [kph] at -0.018 [s]



CFC_180

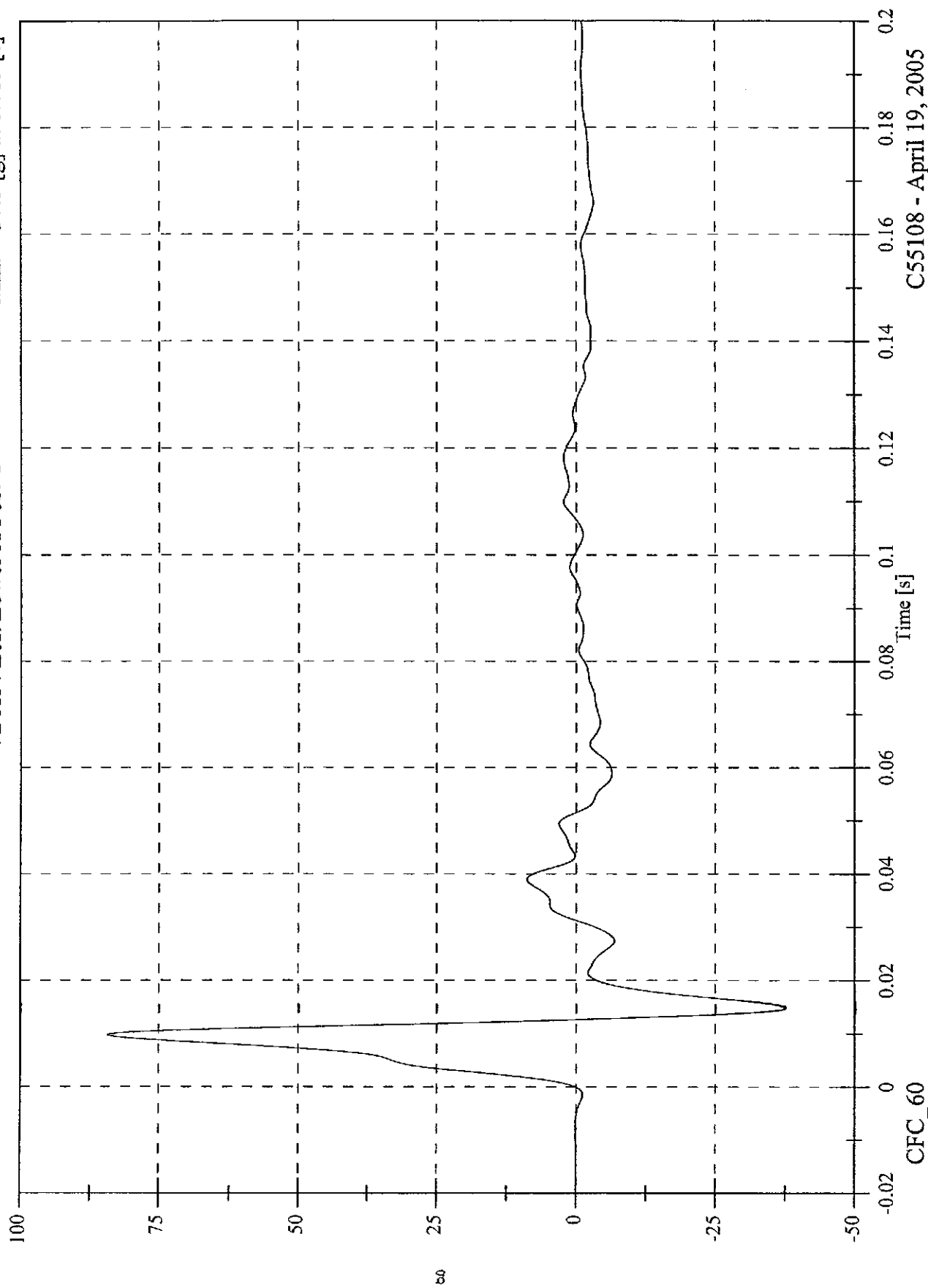
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A14 Left Lower A Post Y

Max: 84.2 [g] at 0.010 [s]

Min: -37.5 [g] at 0.015 [s]

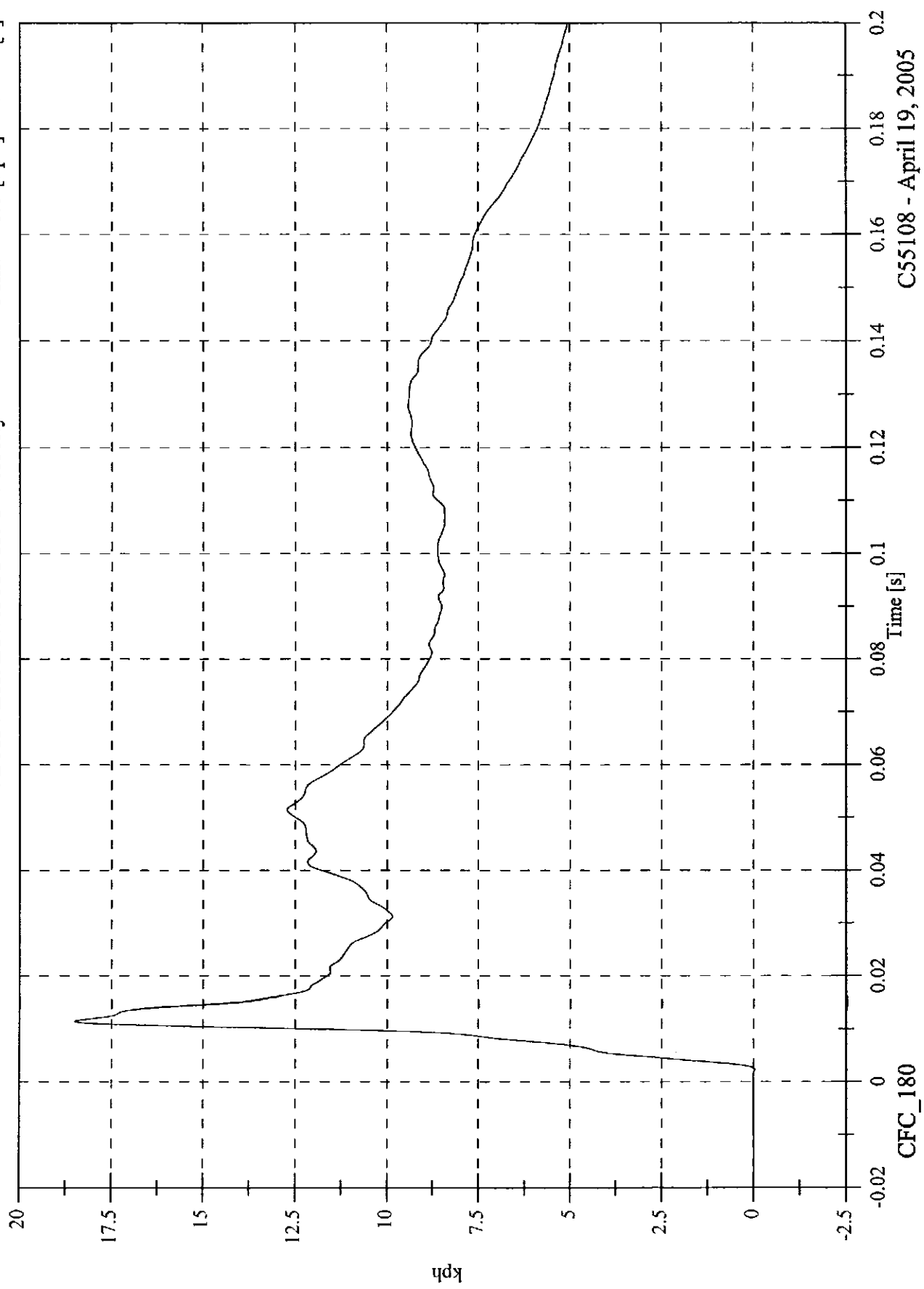


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 18.5 [kph] at 0.011 [s]
Min: -0.0 [kph] at 0.002 [s]

V2 A14 Left Lower A Post Y Velocity

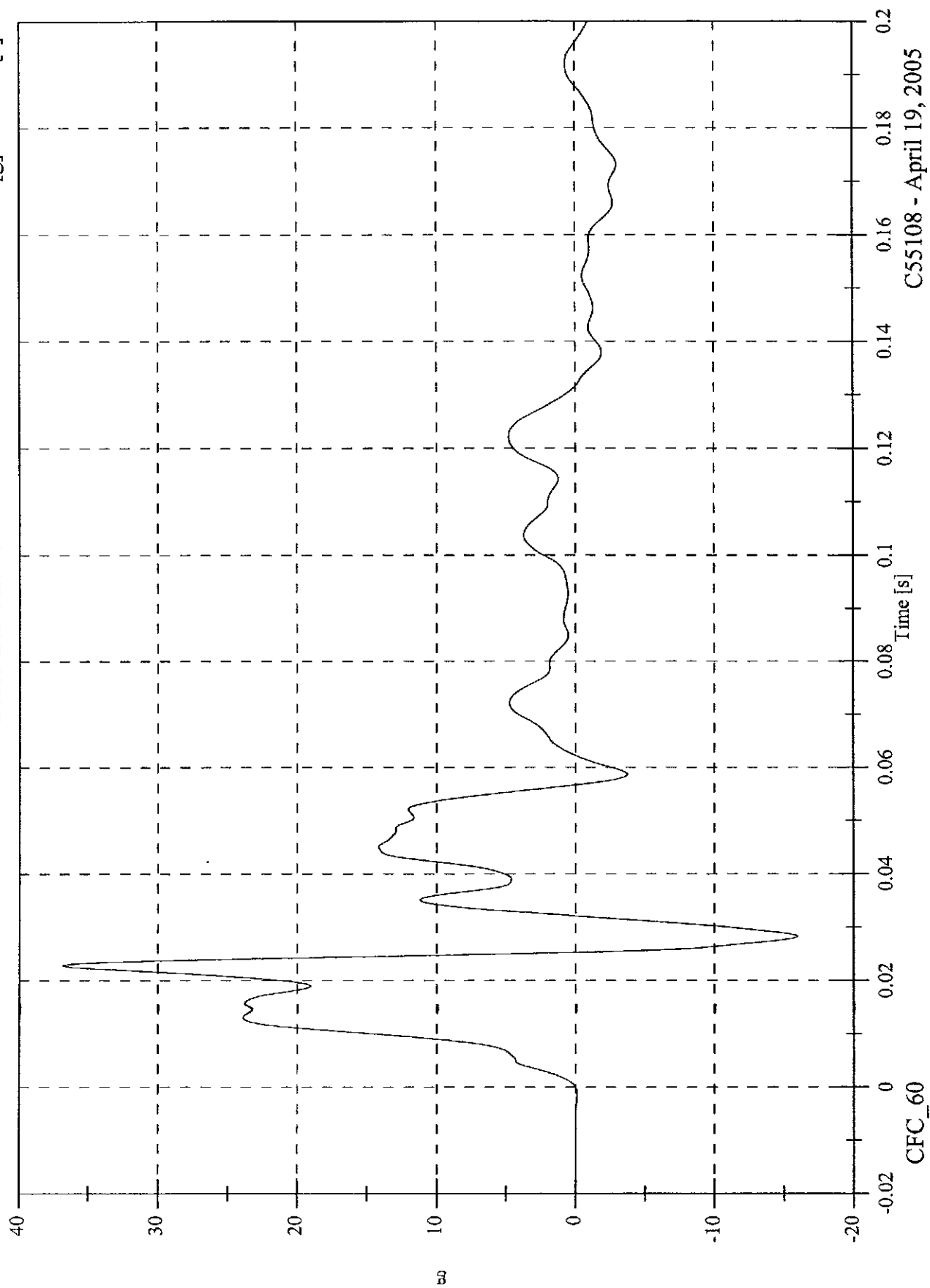


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A15 Left Mid A Post Y

Max: 36.9 [g] at 0.023 [s]
Min: -16.0 [g] at 0.028 [s]

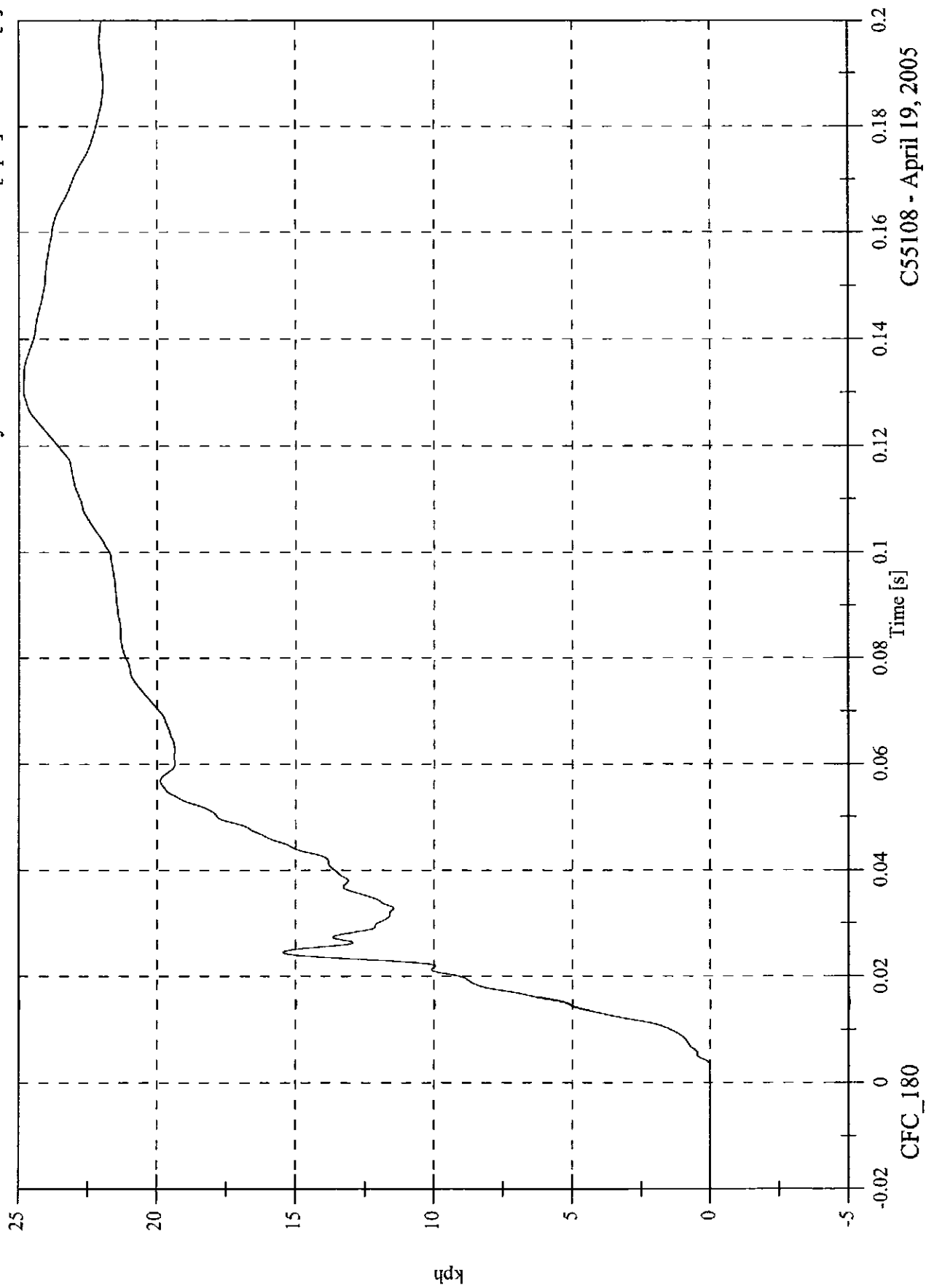


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 24.8 [kph] at 0.131 [s]
Min: -0.0 [kph] at -0.020 [s]

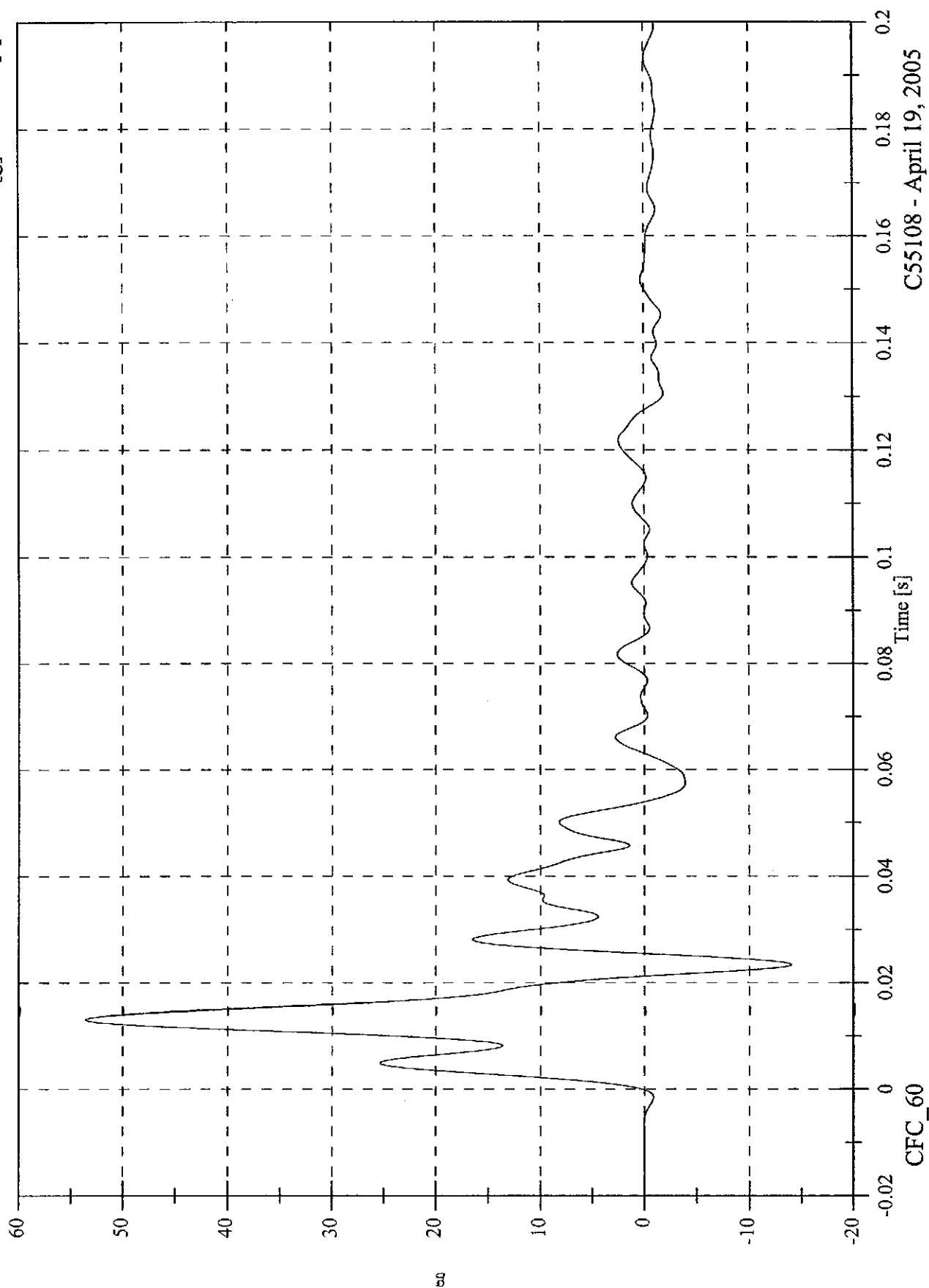
V2 A15 Left Mid A Post Y Velocity



C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon
V2 A16 Front Seat Track Y

Max: 53.6 [g] at 0.013 [s]
Min: -14.0 [g] at 0.023 [s]

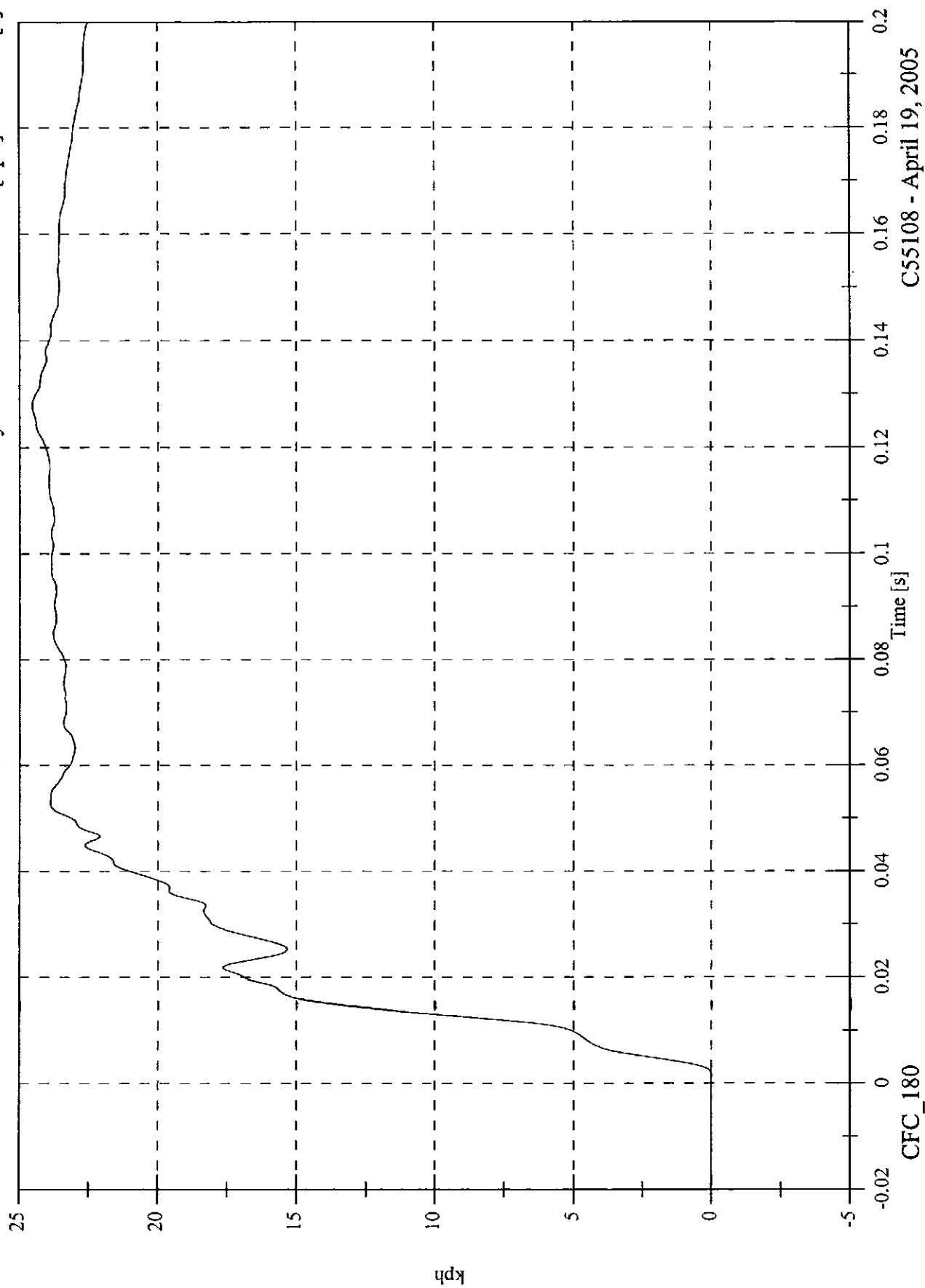


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 24.5 [kph] at 0.128 [s]
Min: -0.0 [kph] at -0.018 [s]

V2 A16 Front Seat Track Y Velocity

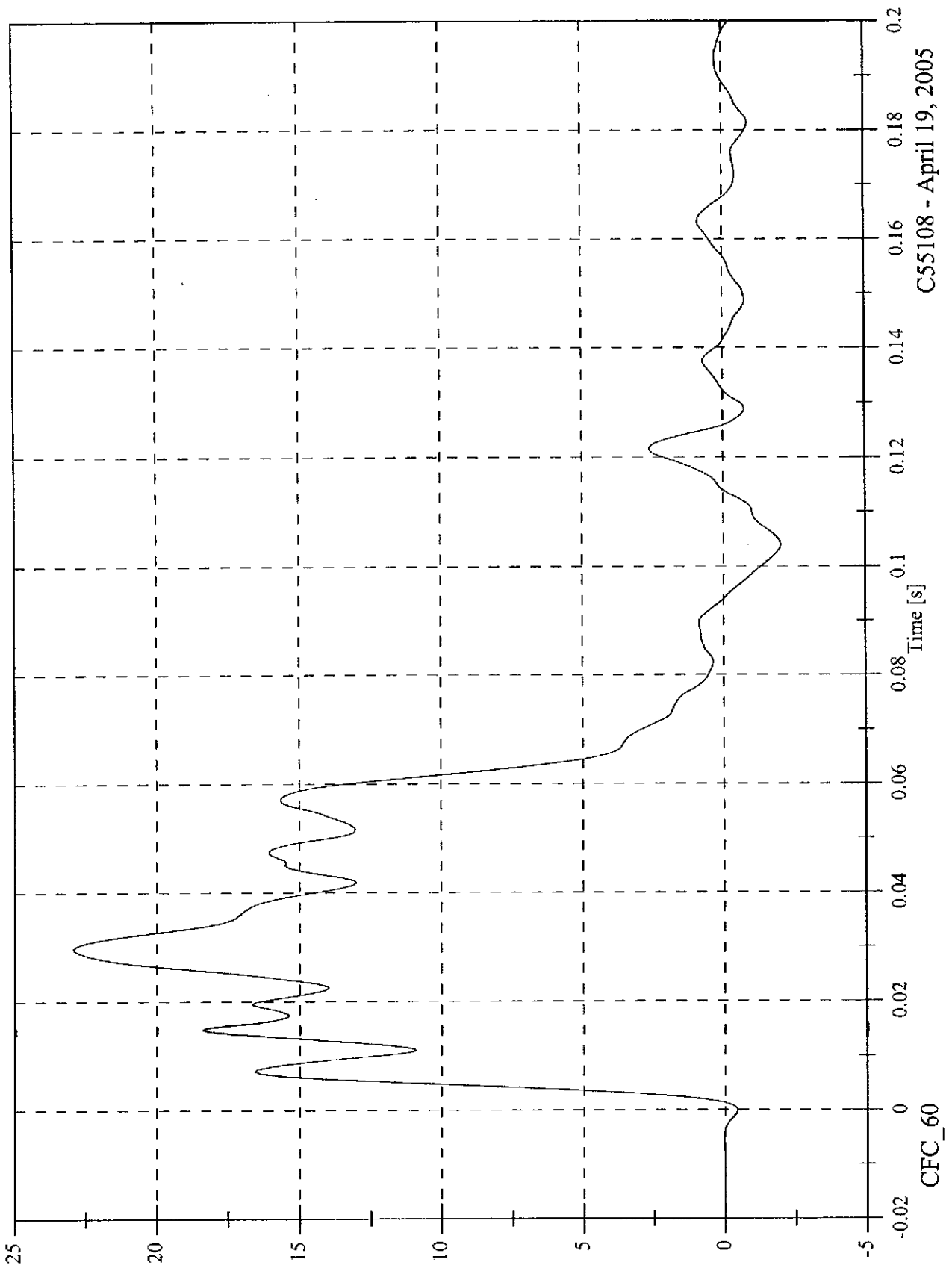


CFC_180

C55108 - April 19, 2005

2005 F MVSS214D Inducant Test 6 - 2005 Toyota Avalon
V2 A17 Rear Seat Track Y

Max: 22.9 [g] at 0.030 [s]
Min: -2.0 [g] at 0.104 [s]

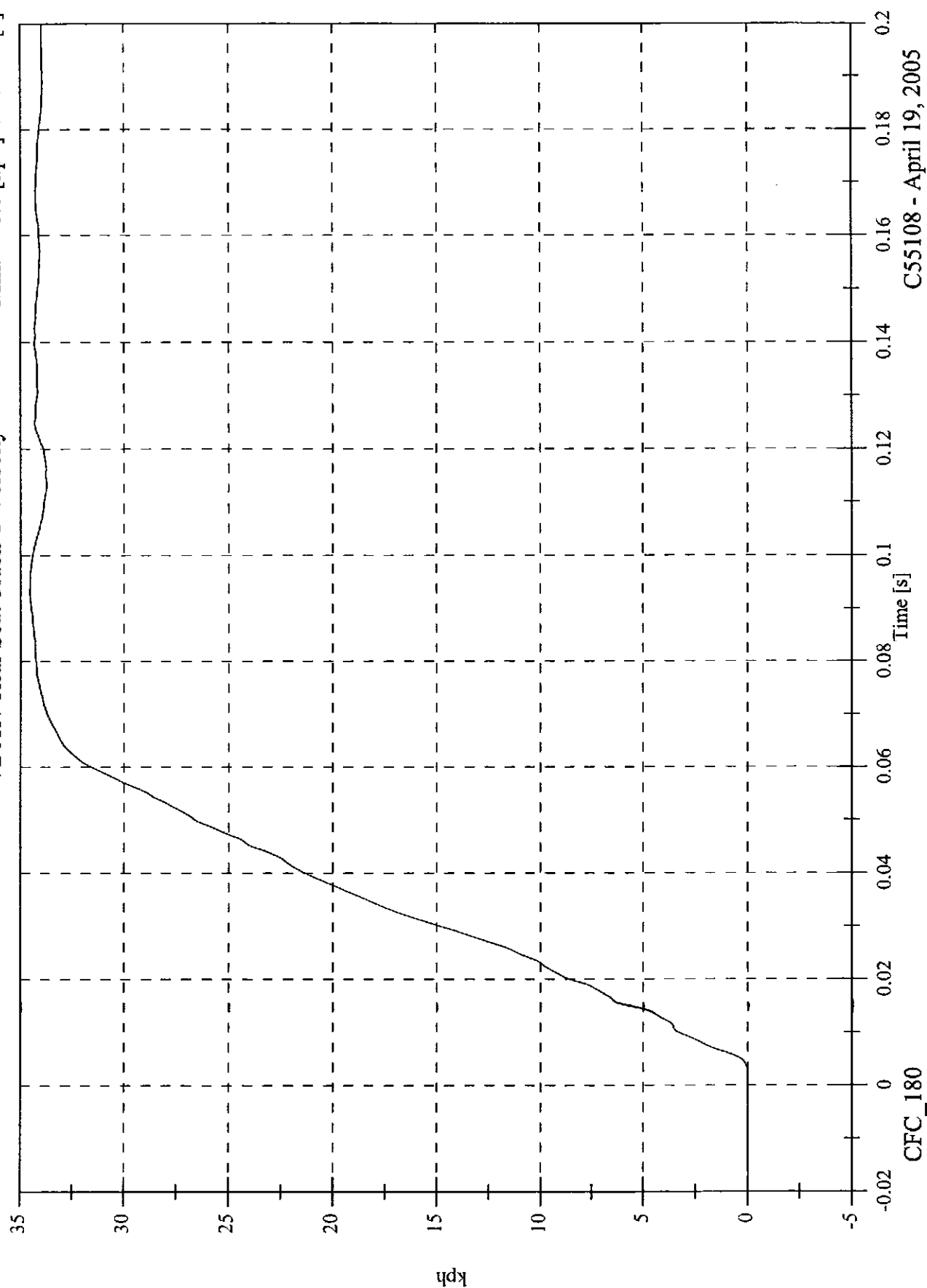


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 34.5 [kph] at 0.093 [s]
Min: -0.0 [kph] at -0.020 [s]

V2 A17 Rear Seat Track Y Velocity

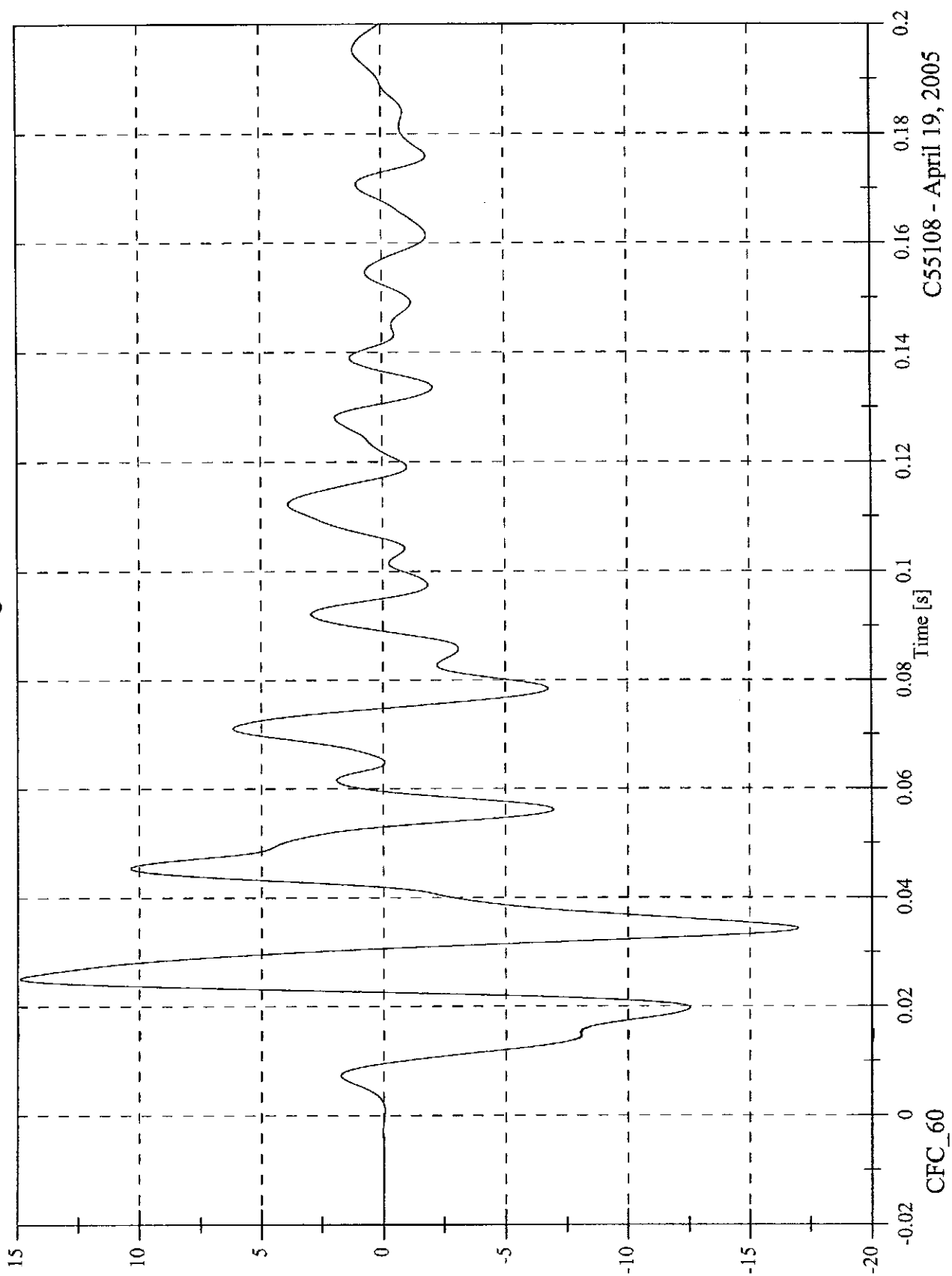


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A18 Target CG X

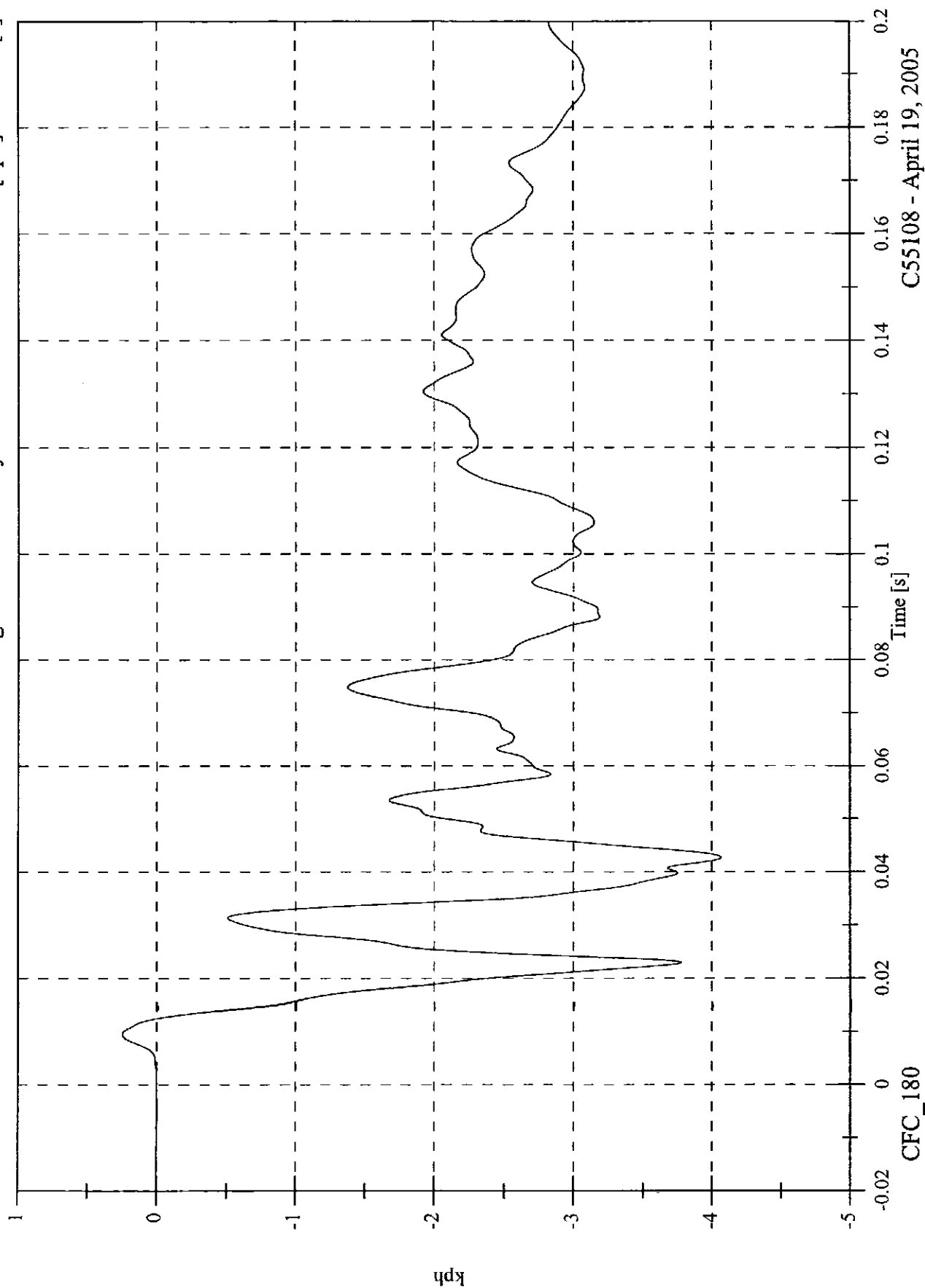
Max: 14.9 [g] at 0.025 [s]
Min: -17.0 [g] at 0.034 [s]



2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 0.2 [kph] at 0.010 [s]
 Min: -4.1 [kph] at 0.043 [s]

V2 A18 Target CG X Velocity



CFC_180

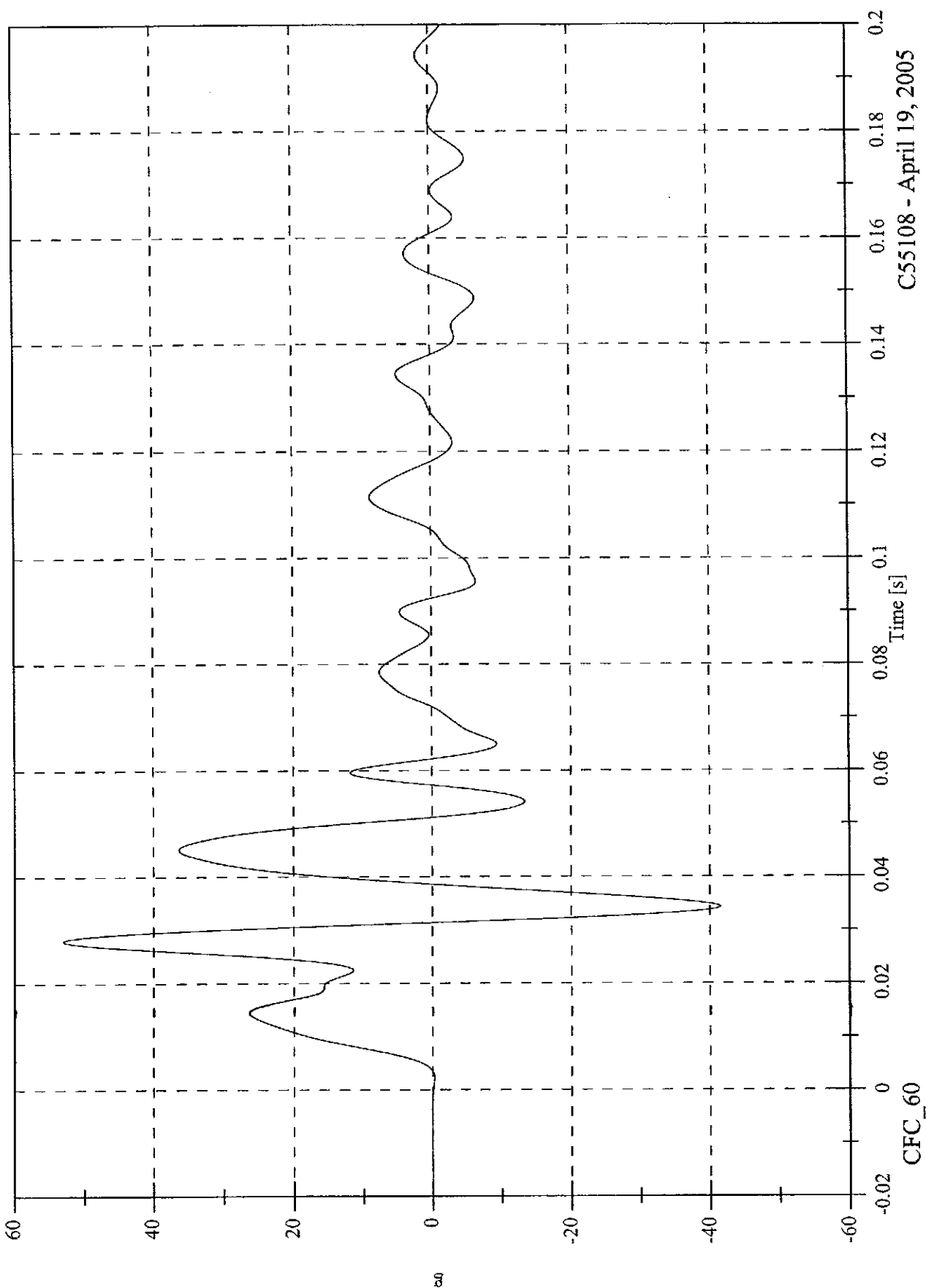
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A18 Target CG Y

Max: 53.0 [g] at 0.028 [s]

Min: -41.5 [g] at 0.034 [s]

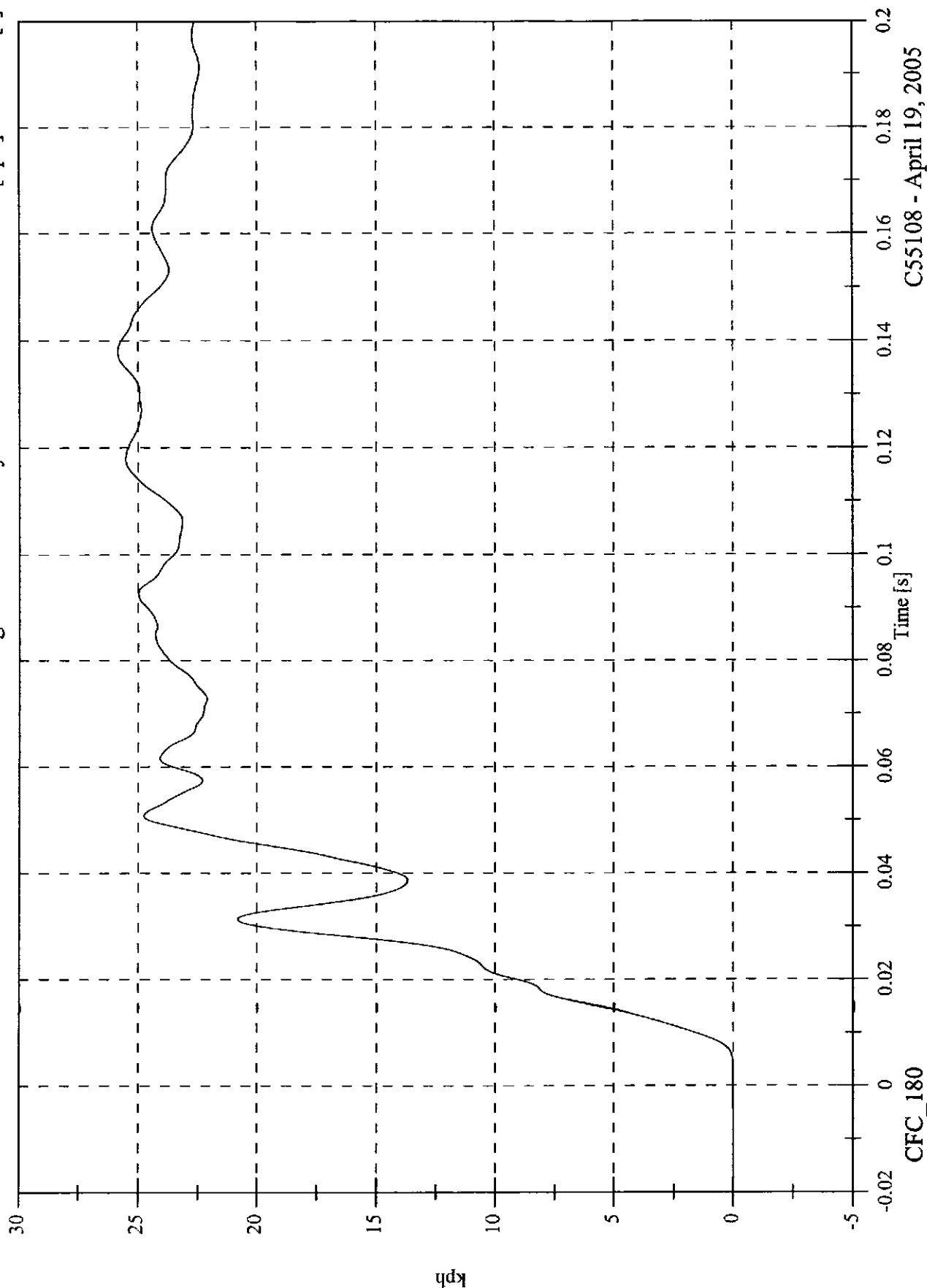


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2 A18 Target CG Y Velocity

Max: 25.8 [kph] at 0.138 [s]
Min: -0.0 [kph] at -0.018 [s]



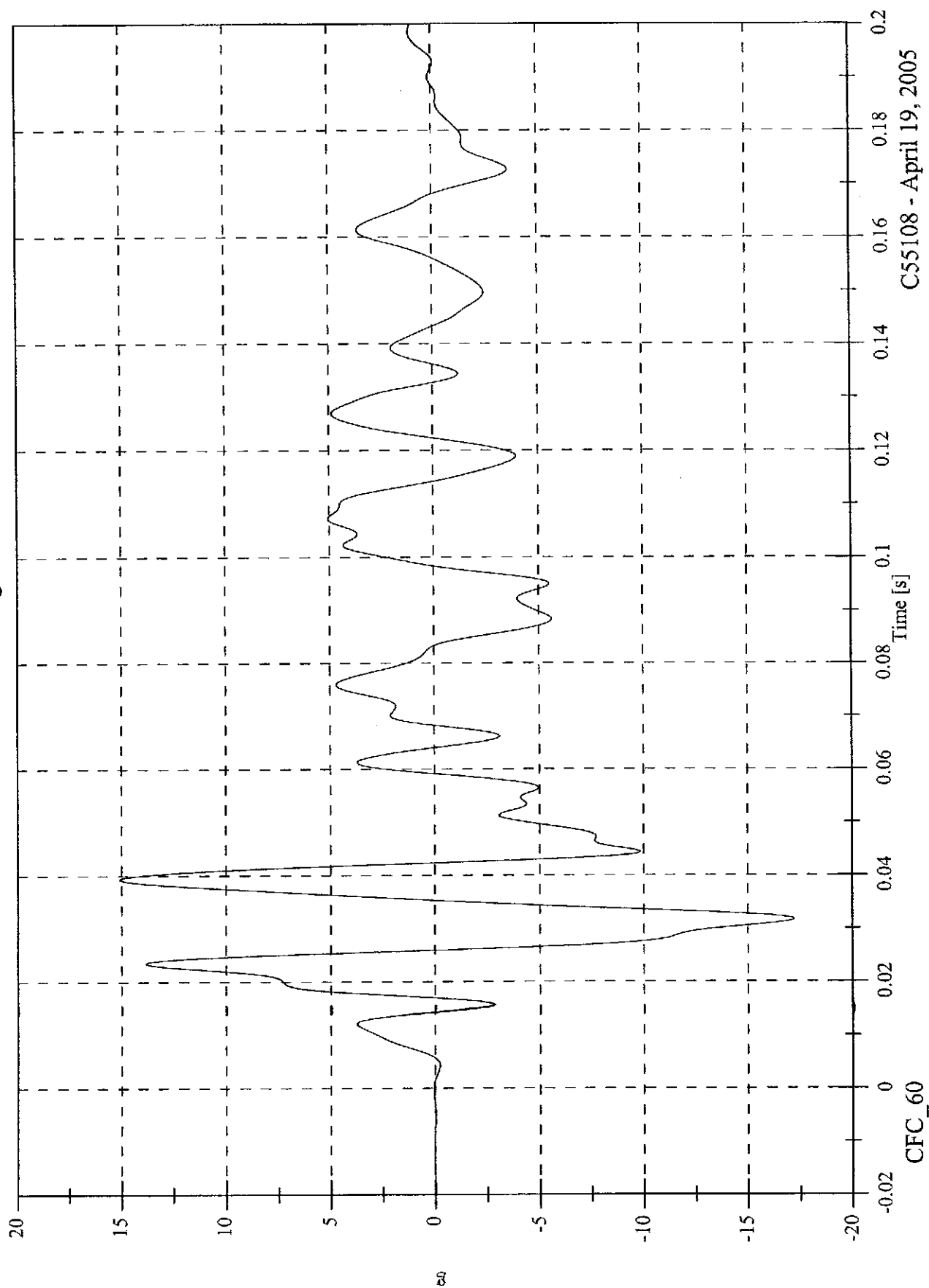
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 15.1 [g] at 0.039 [s]

V2 A18 Target CG Z

Min: -17.2 [g] at 0.032 [s]

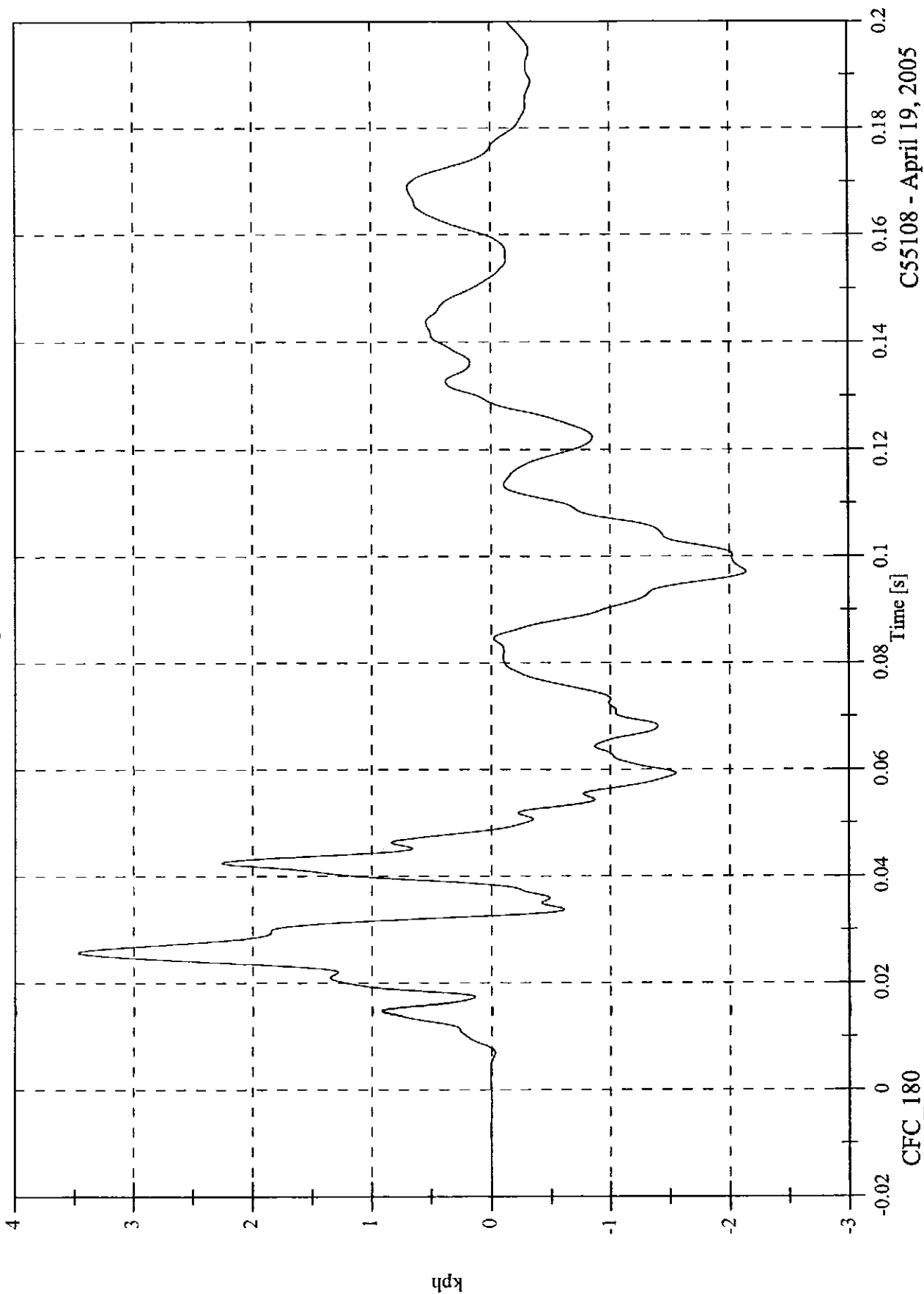


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 3.5 [kph] at 0.026 [s]
Min: -2.1 [kph] at 0.097 [s]

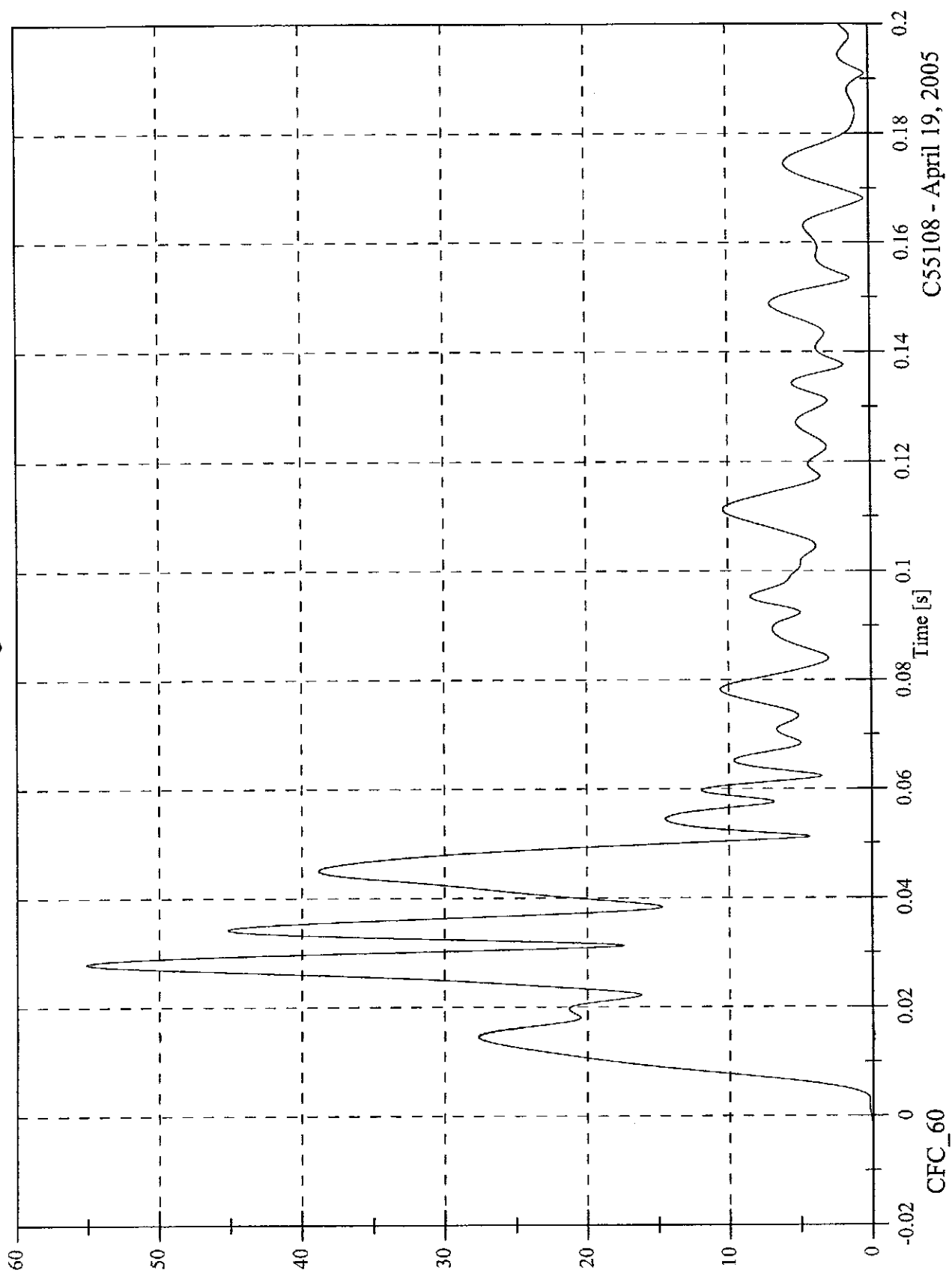
V2 A18 Target CG Z Velocity



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2 A18 Target CG Resultant

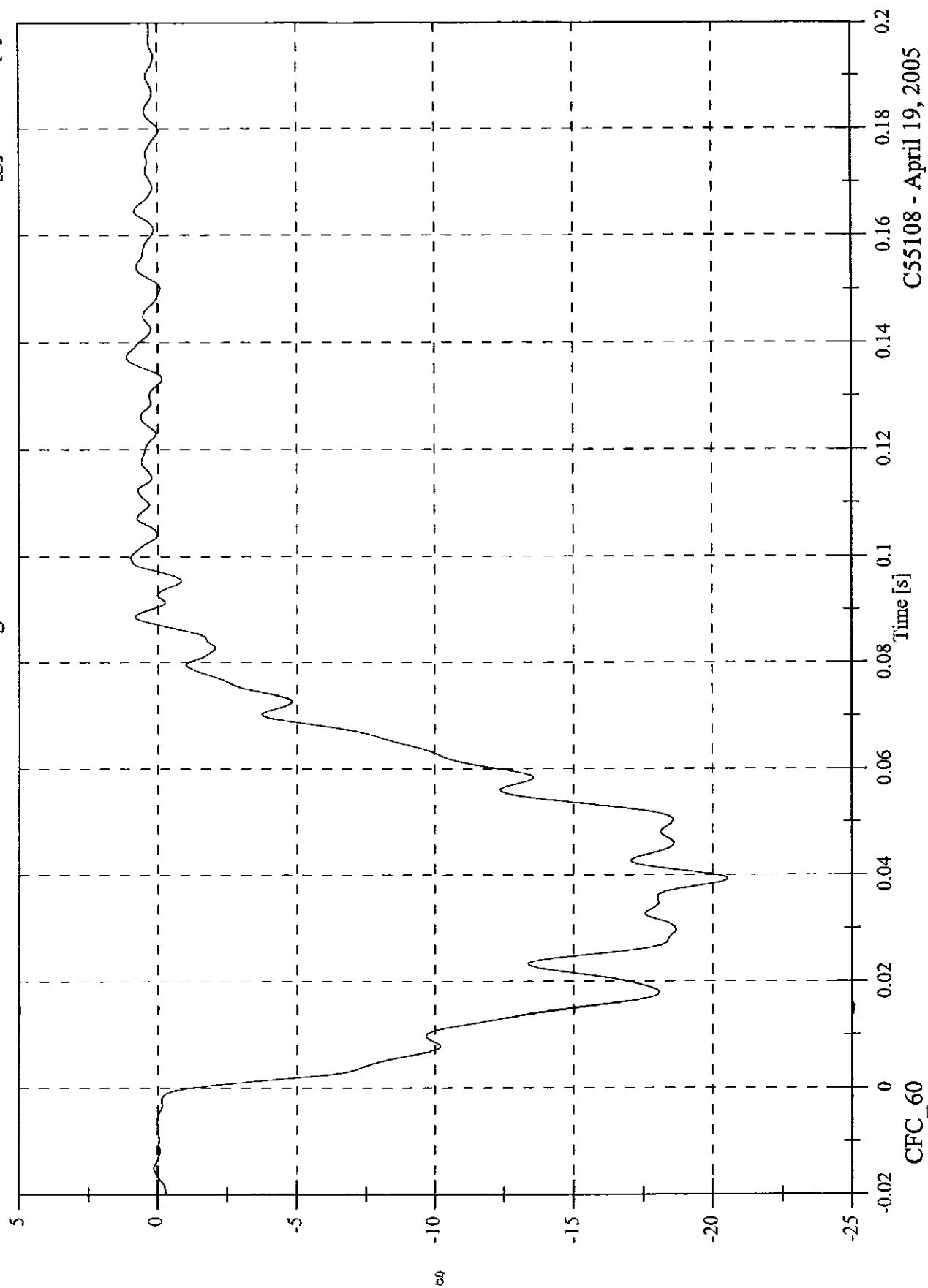
Max: 55.1 [g] at 0.028 [s]
Min: 0.0 [g] at -0.017 [s]



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V1 Moving Barrier CG X

Max: 1.1 [g] at 0.137 [s]
Min: -20.5 [g] at 0.039 [s]



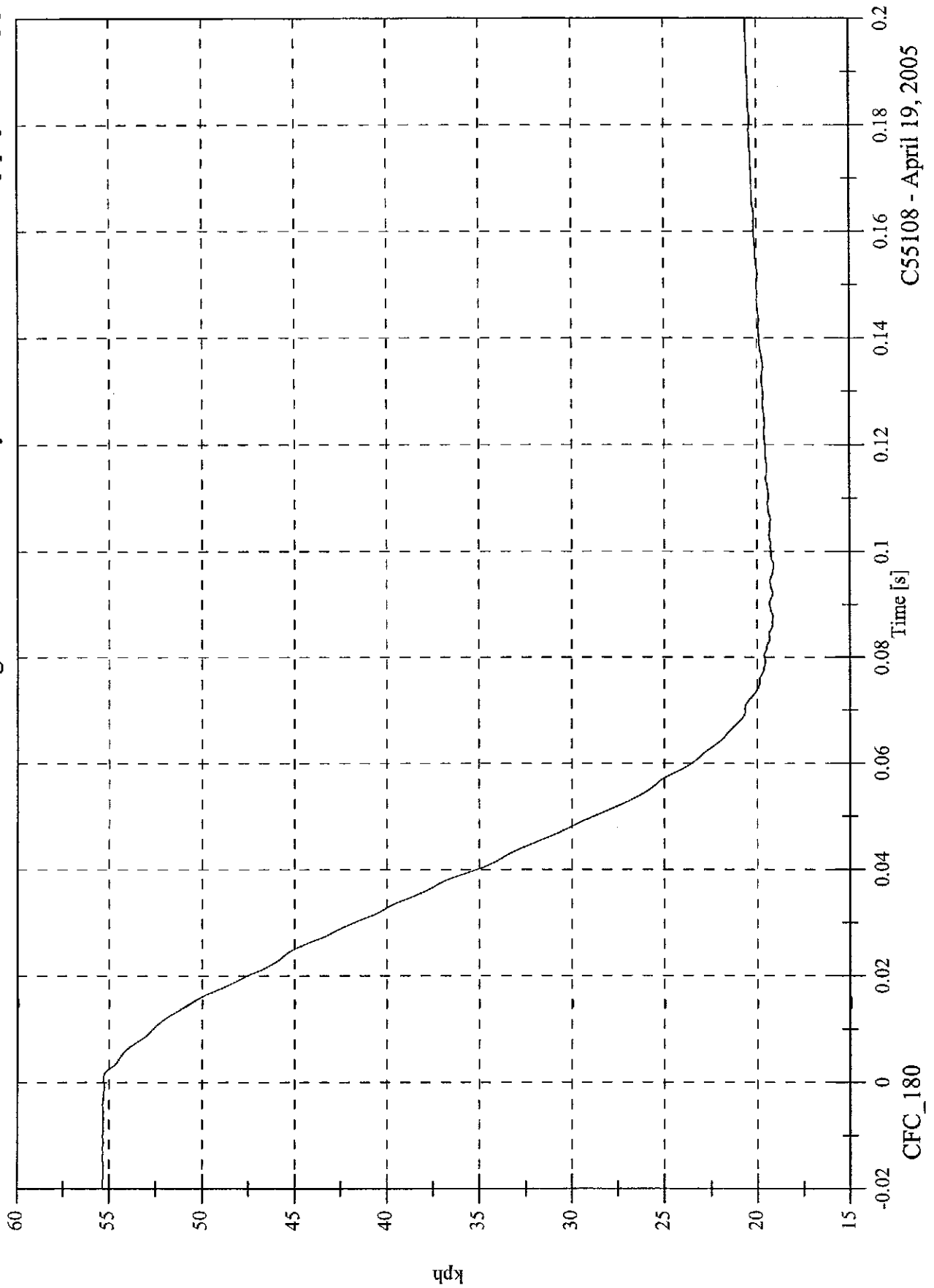
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 55.4 [kph] at -0.014 [s]

Min: 19.1 [kph] at 0.097 [s]

V1 Moving Barrier CG X Velocity

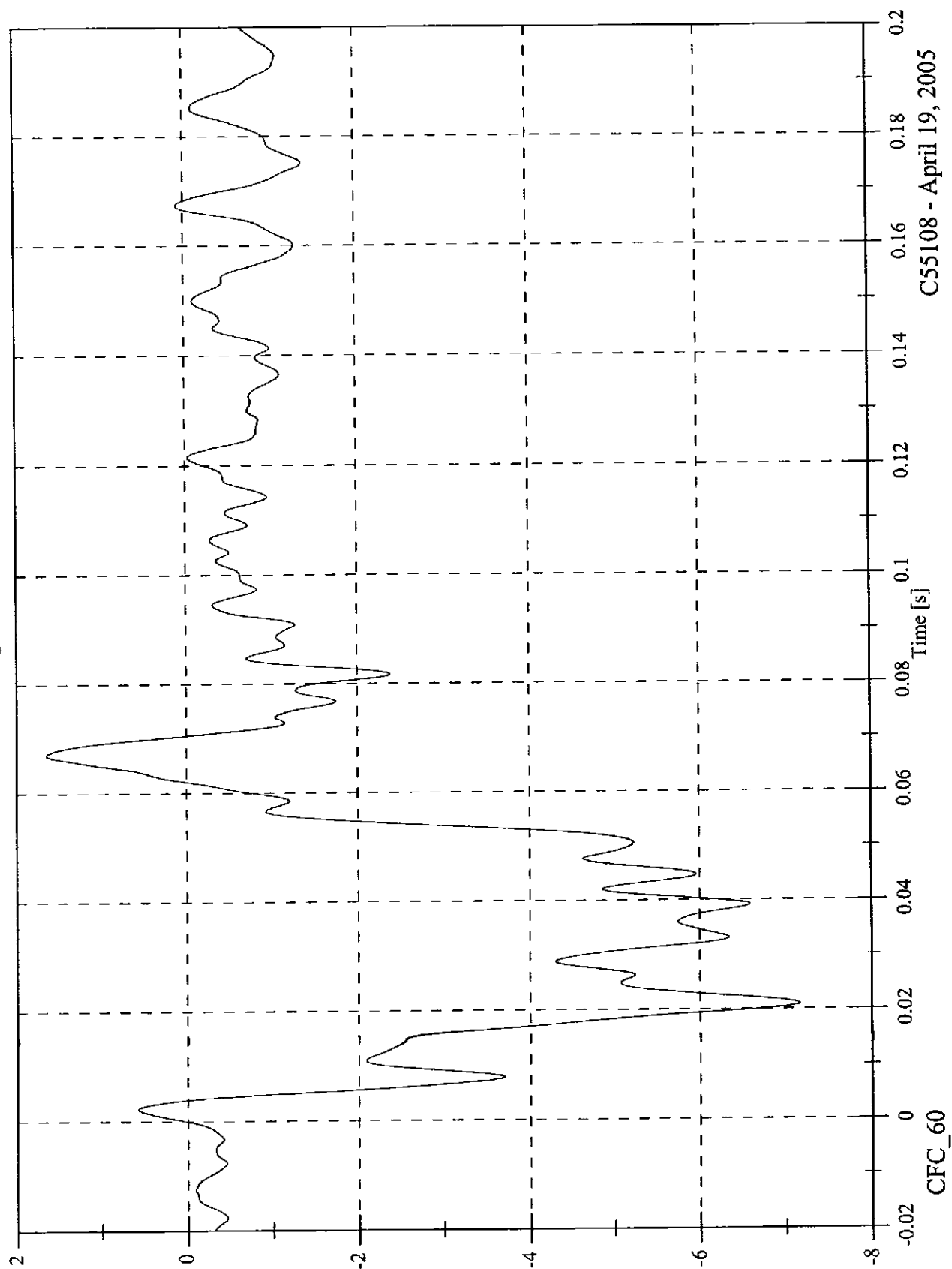


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 1.6 [g] at 0.067 [s]
 Min: -7.2 [g] at 0.021 [s]

V1 Moving Barrier CG Y

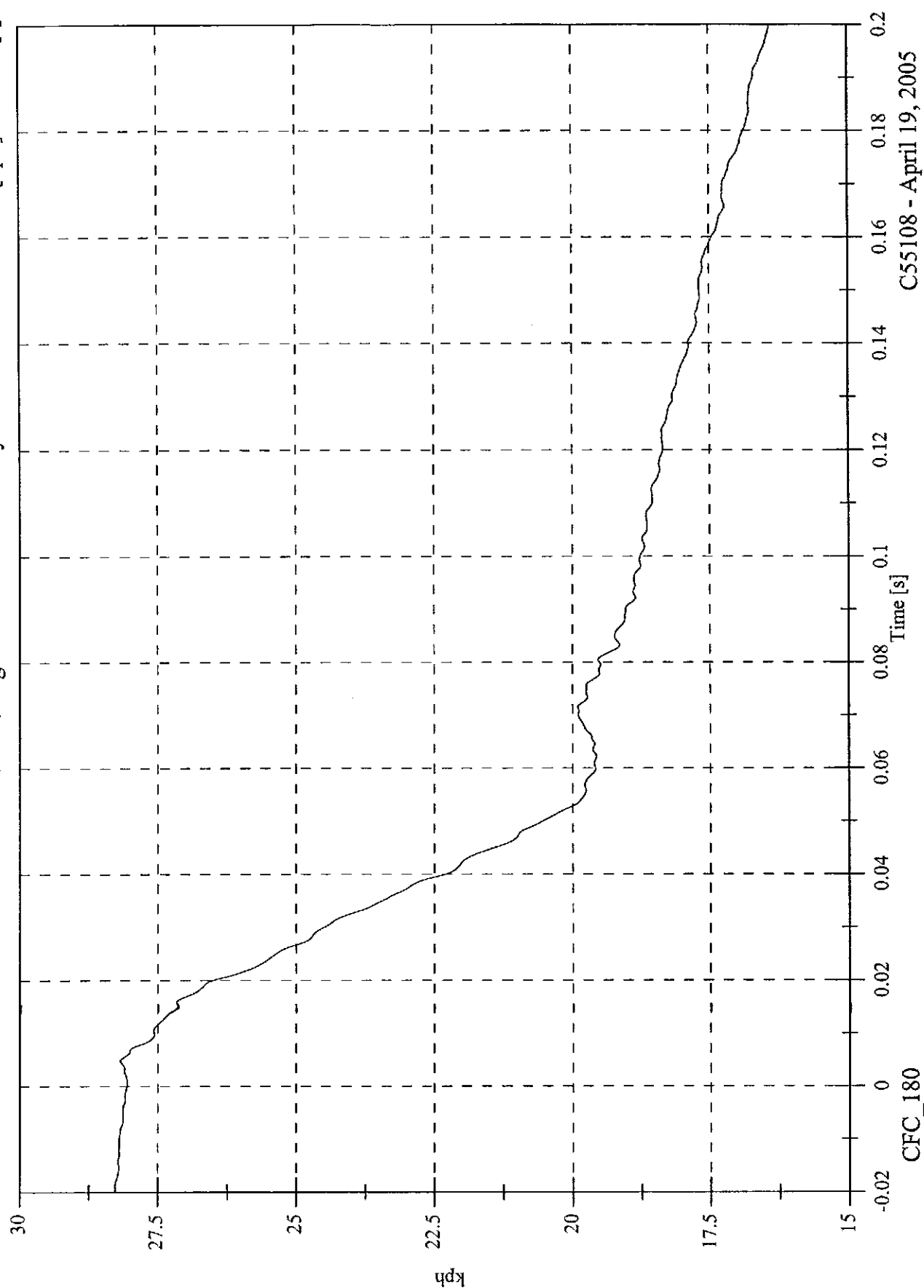


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V1 Moving Barrier CG Y Velocity

Max: 28.3 [kph] at -0.019 [s]
Min: 16.4 [kph] at 0.200 [s]



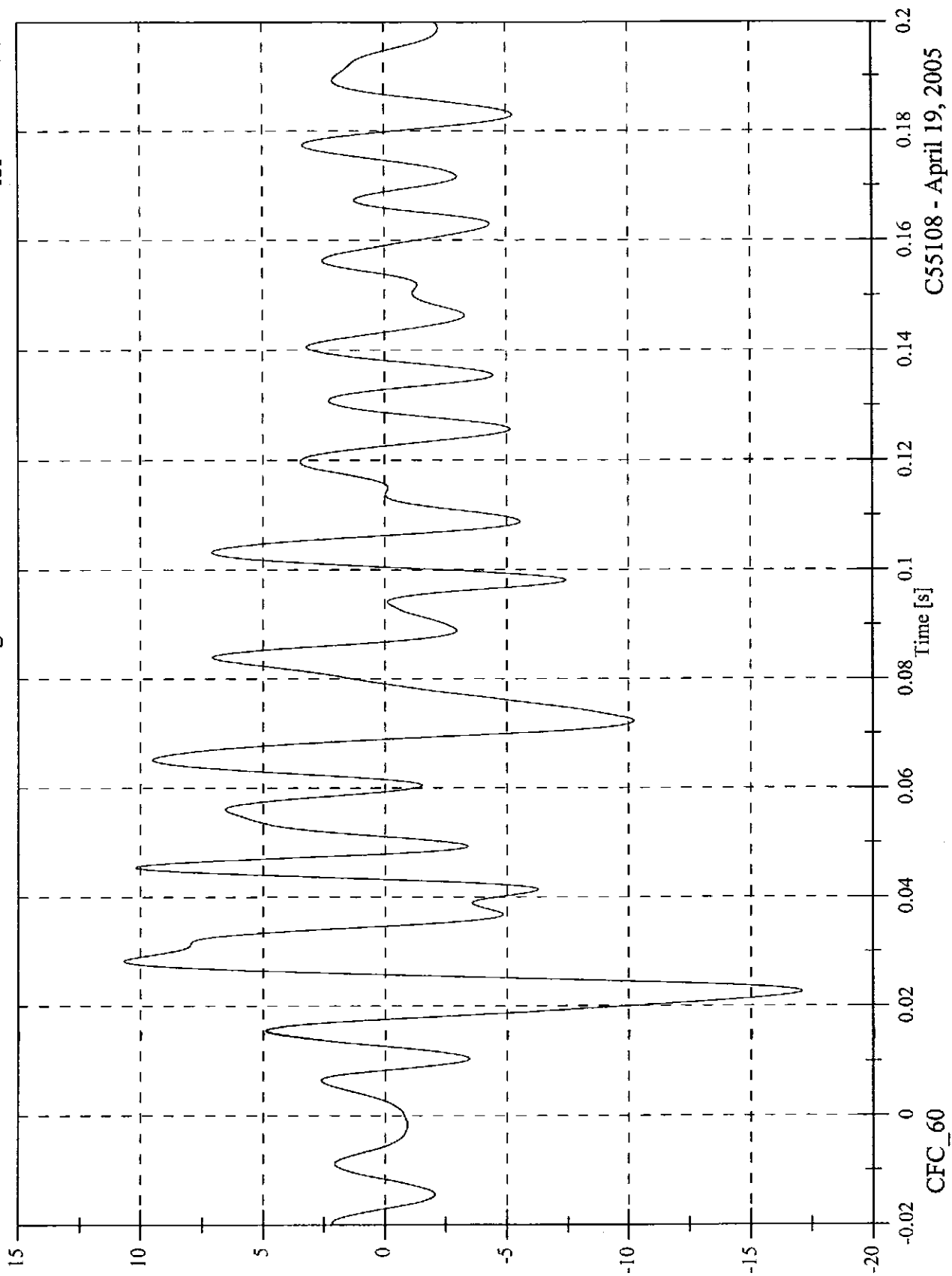
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 10.7 [g] at 0.028 [s]

Min: -17.1 [g] at 0.023 [s]

V1 Moving Barrier CG Z

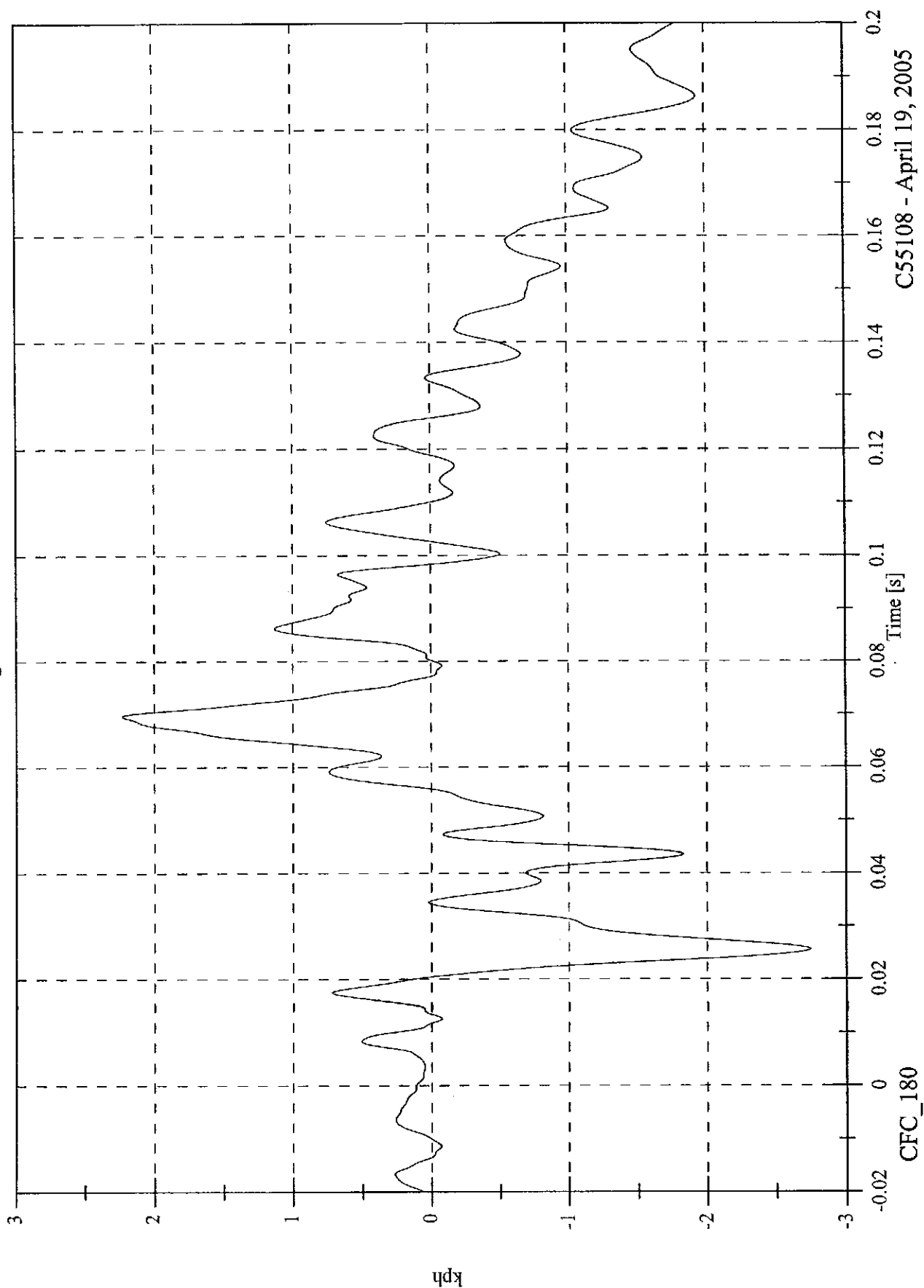


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 2.2 [kph] at 0.070 [s]
Min: -2.7 [kph] at 0.026 [s]

V1 Moving Barrier CG Z Velocity

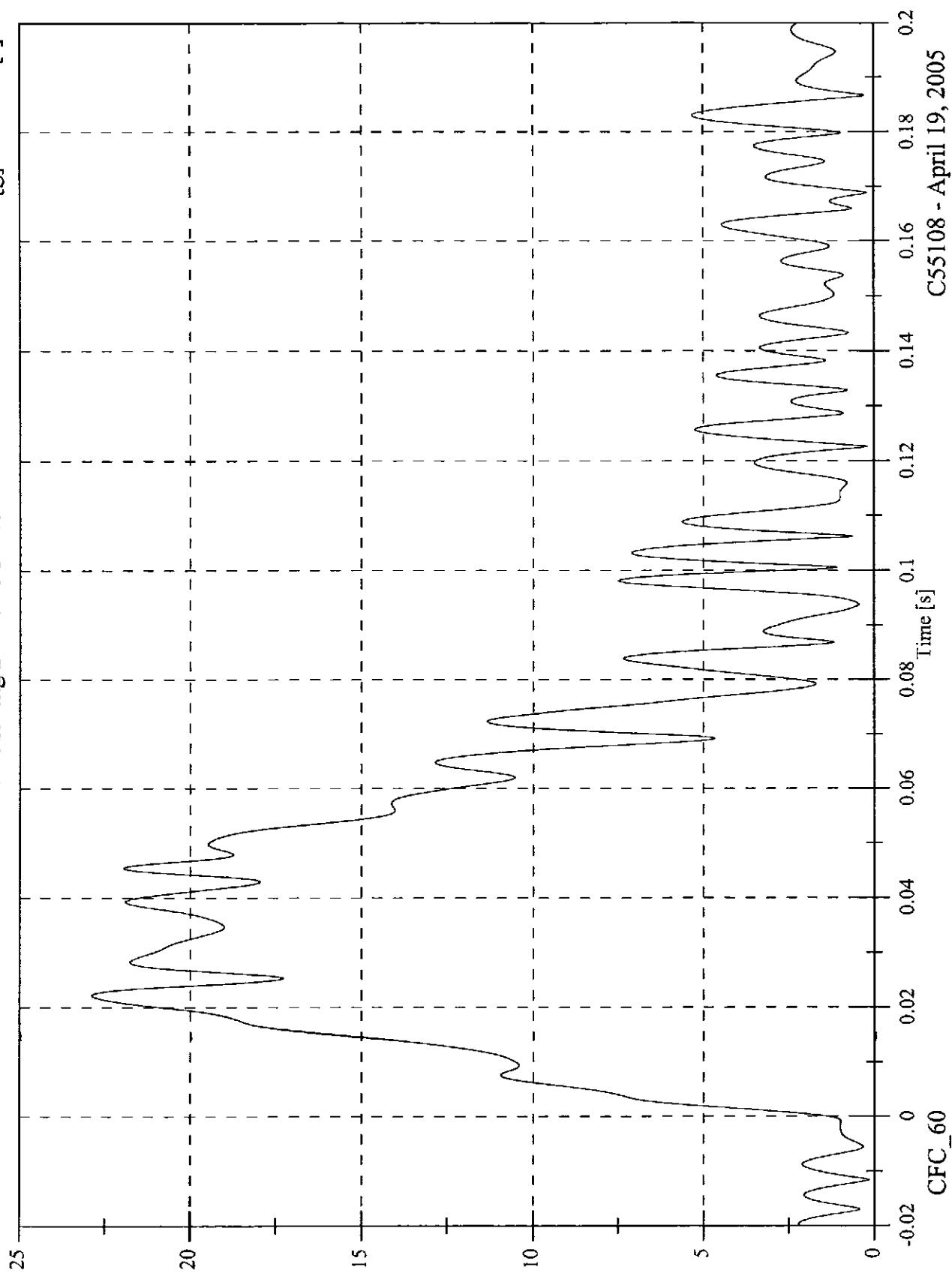


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 22.9 [g] at 0.022 [s]
Min: 0.2 [g] at -0.012 [s]

V1 Moving Barrier CG Resultant



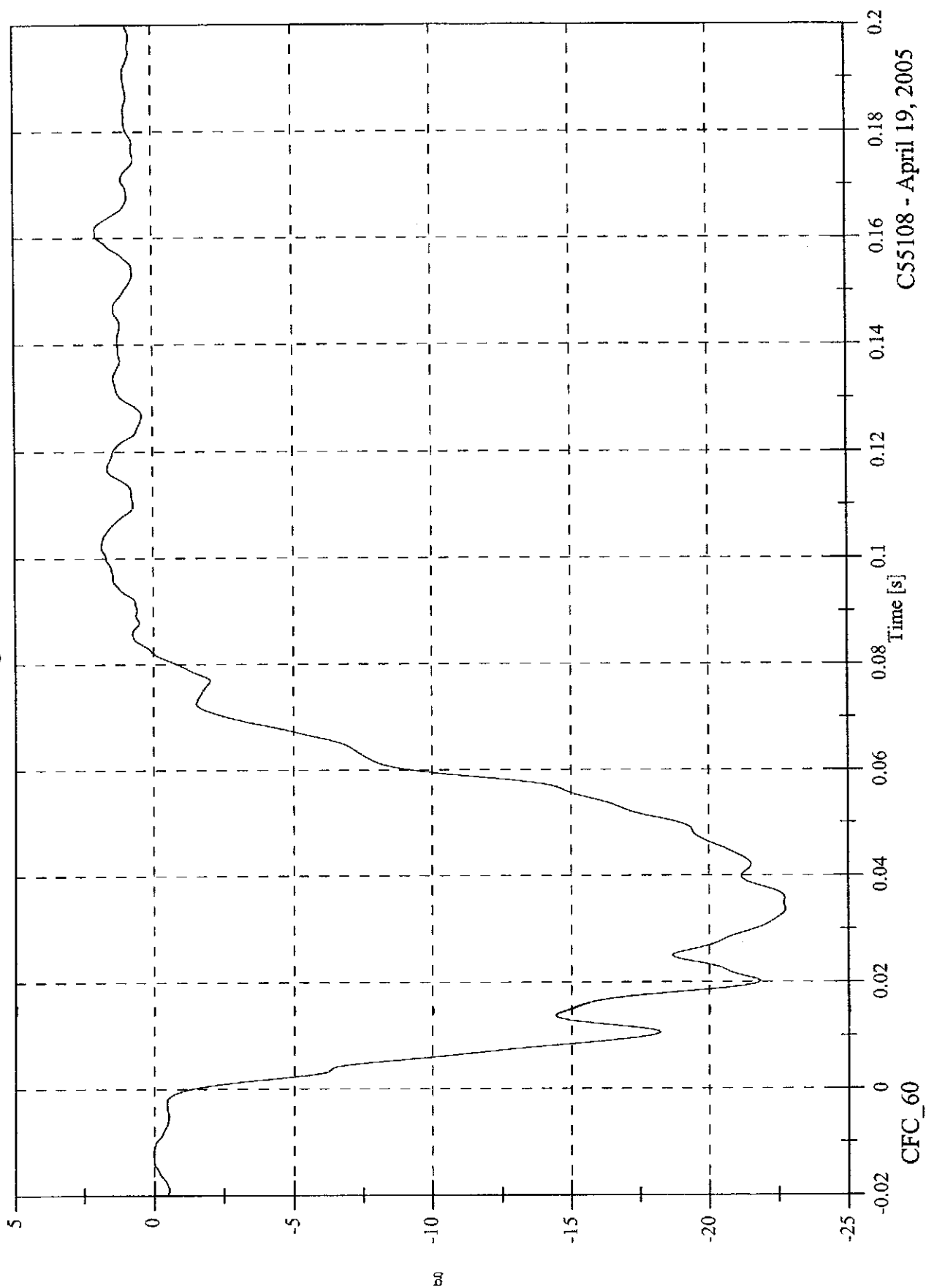
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

V1 Moving Barrier Left Rail X

Max: 2.0 [g] at 0.162 [s]

Min: -22.8 [g] at 0.034 [s]



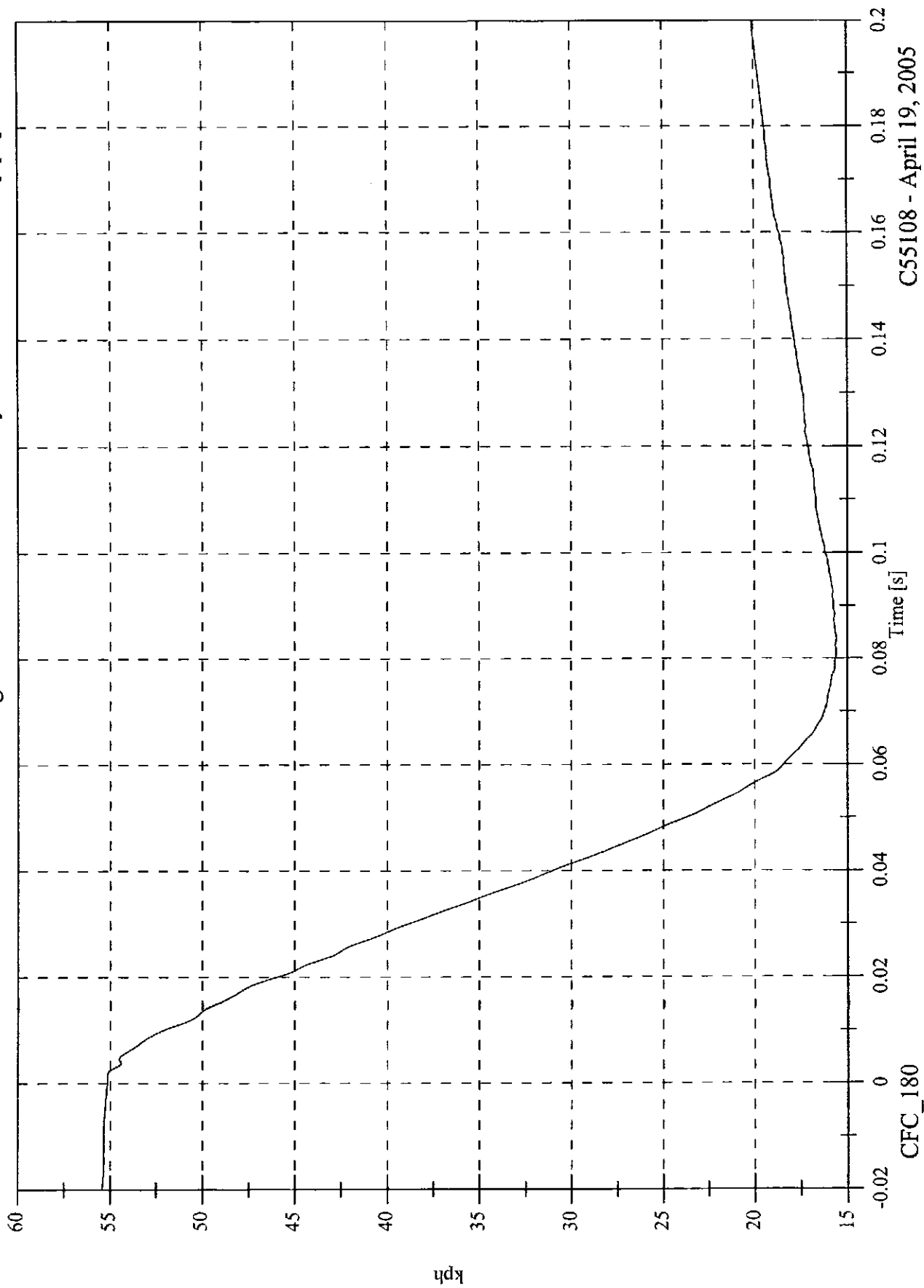
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 55.4 [kph] at -0.020 [s]

V1 Moving Barrier Left Rail X Velocity

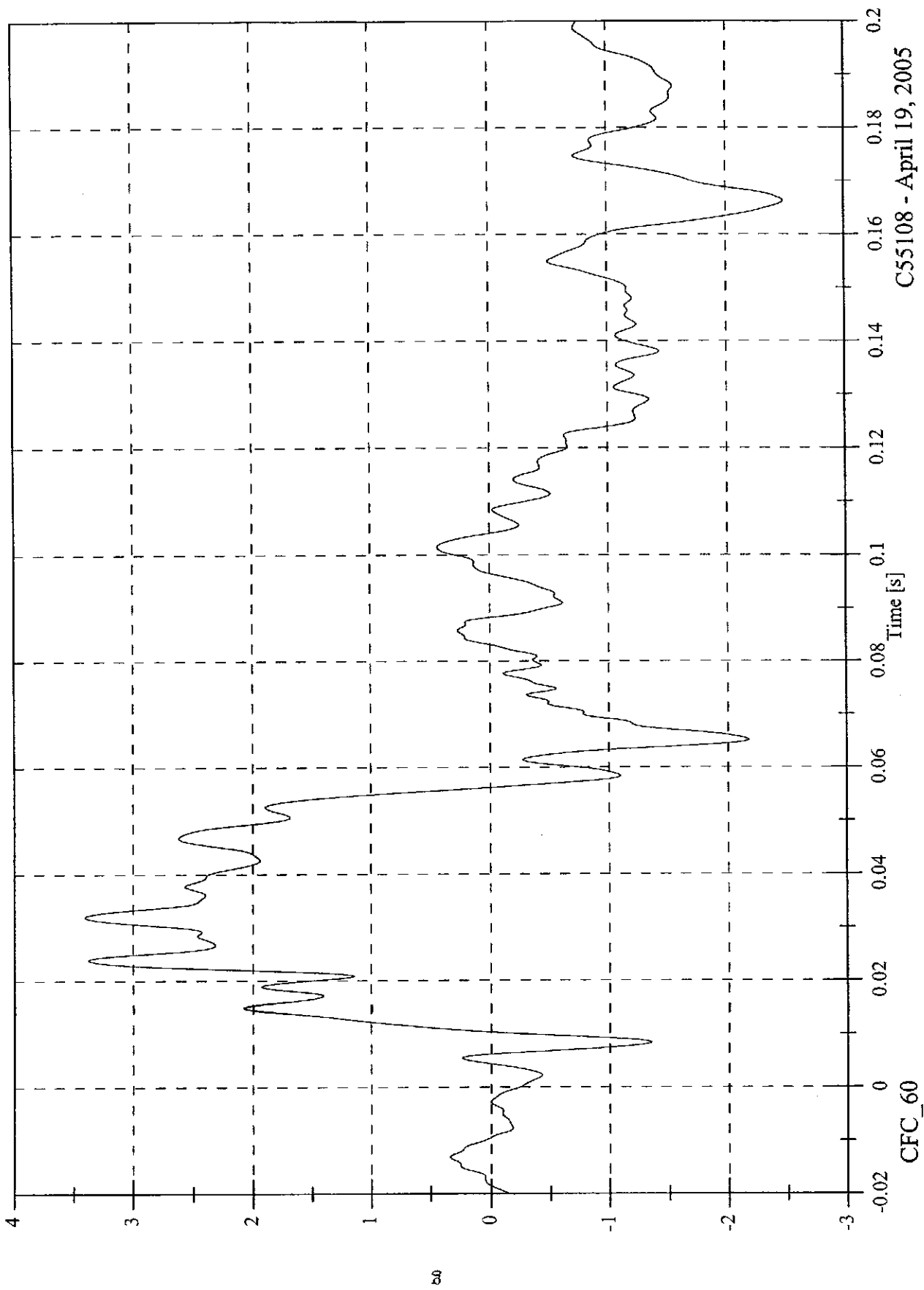
Min: 15.6 [kph] at 0.084 [s]



C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon
V1 Moving Barrier Left Rail Y

Max: 3.4 [g] at 0.032 [s]
Min: -2.5 [g] at 0.166 [s]

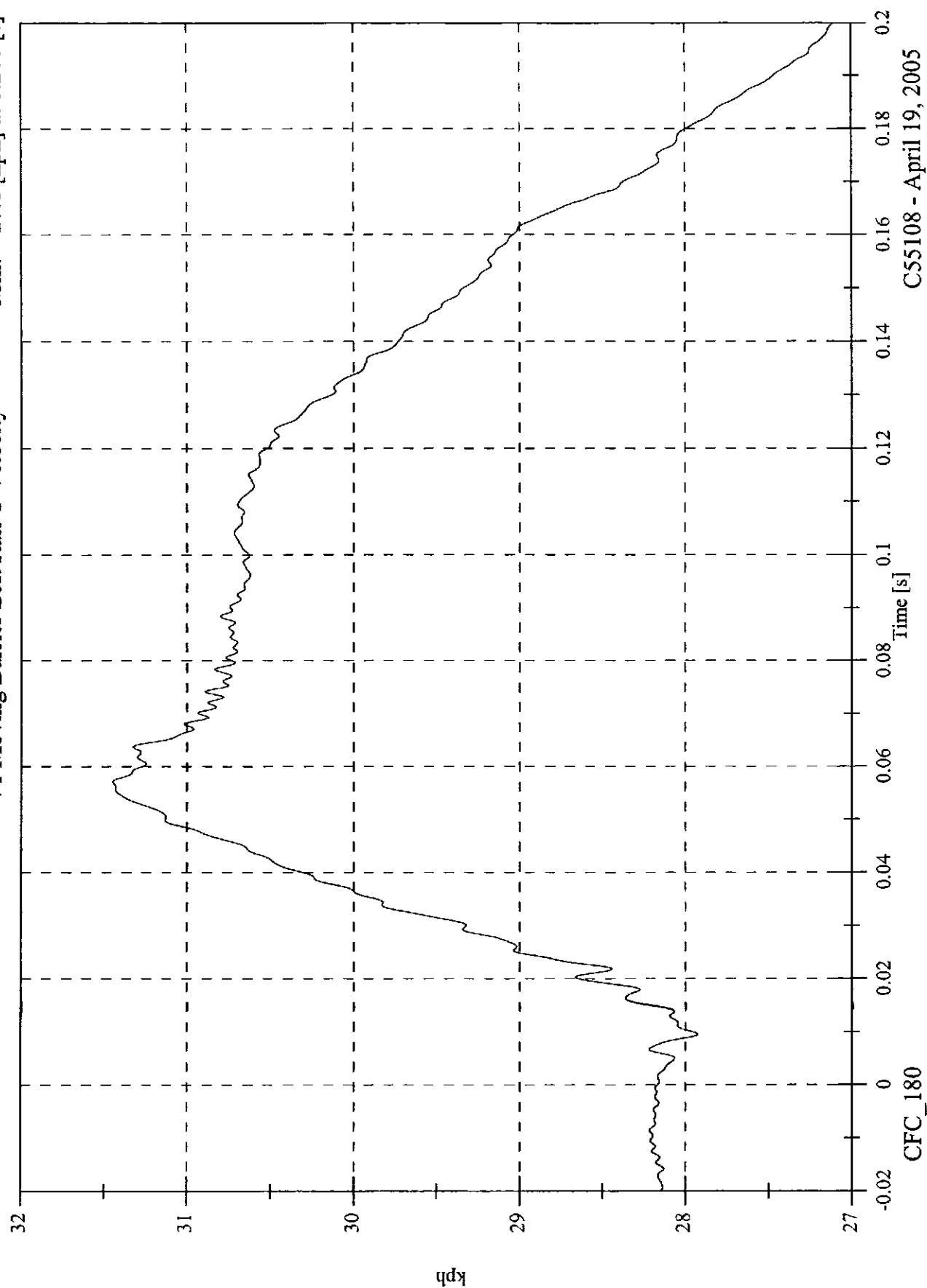


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 31.4 [kph] at 0.057 [s]
Min: 27.1 [kph] at 0.200 [s]

V1 Moving Barrier Left Rail Y Velocity



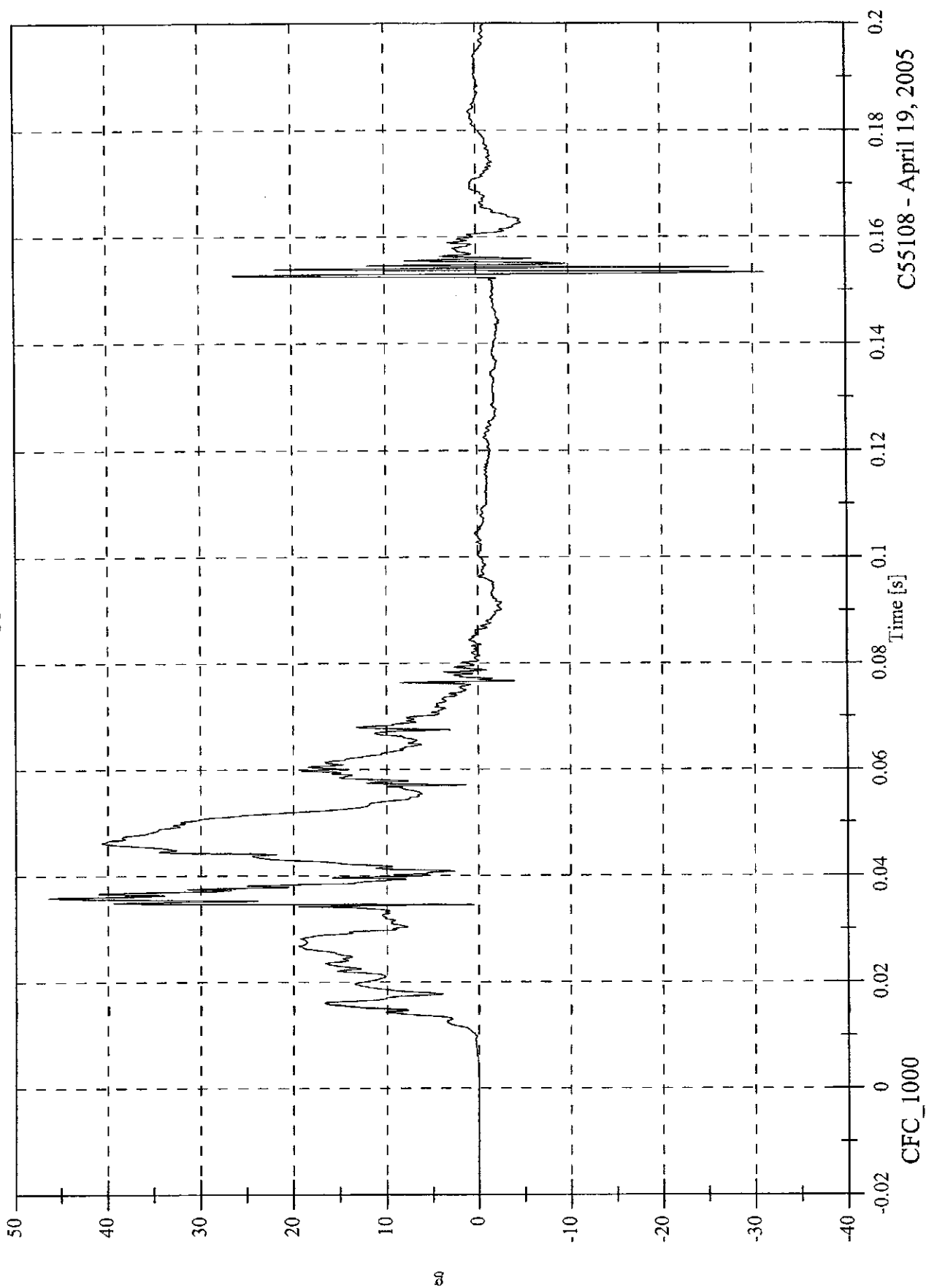
CFC_180

C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Upper Rib Ry

Max: 46.5 [g] at 0.036 [s]
Min: -31.3 [g] at 0.153 [s]

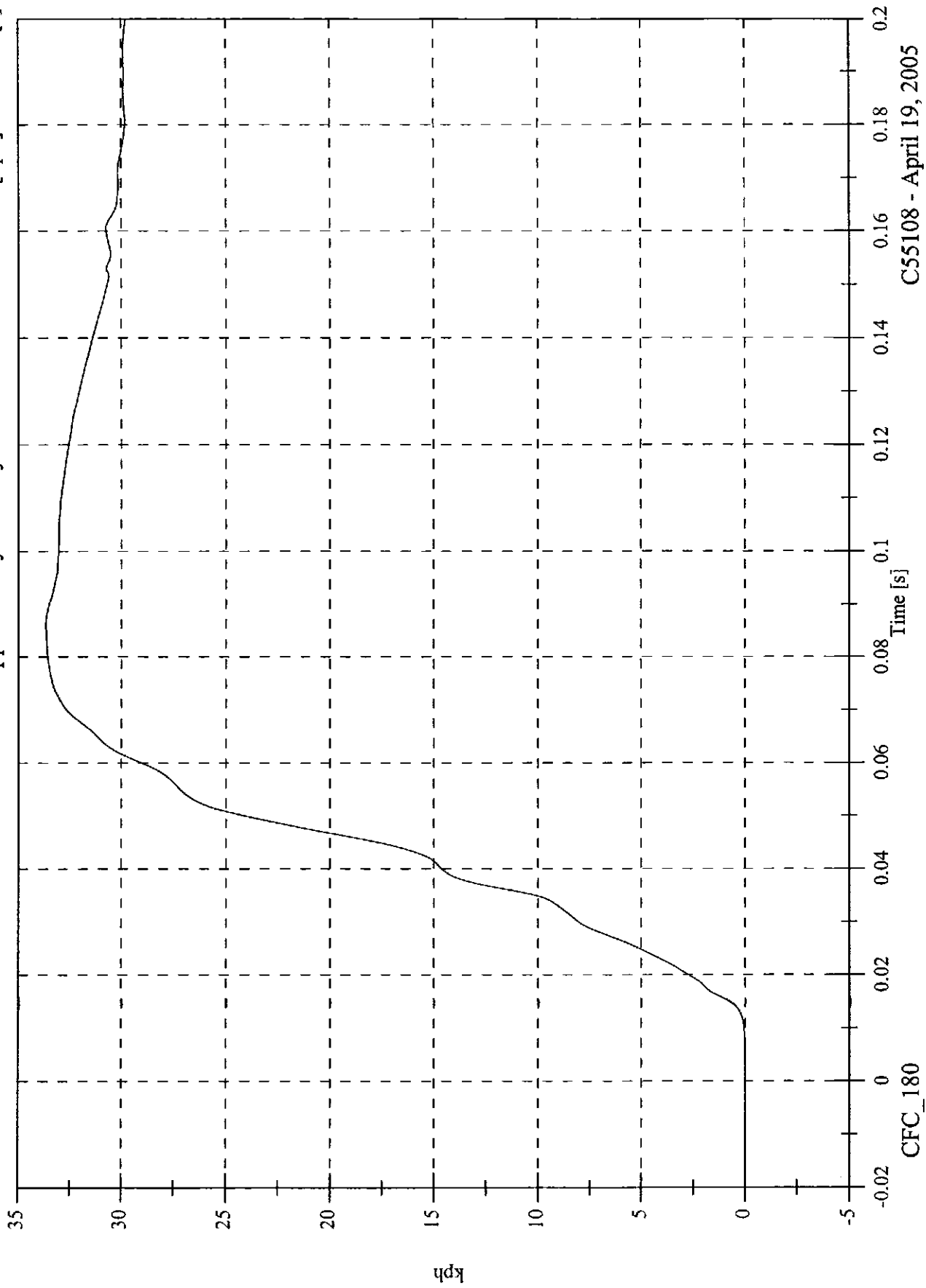


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 33.7 [kph] at 0.086 [s]
 Min: -0.0 [kph] at -0.017 [s]

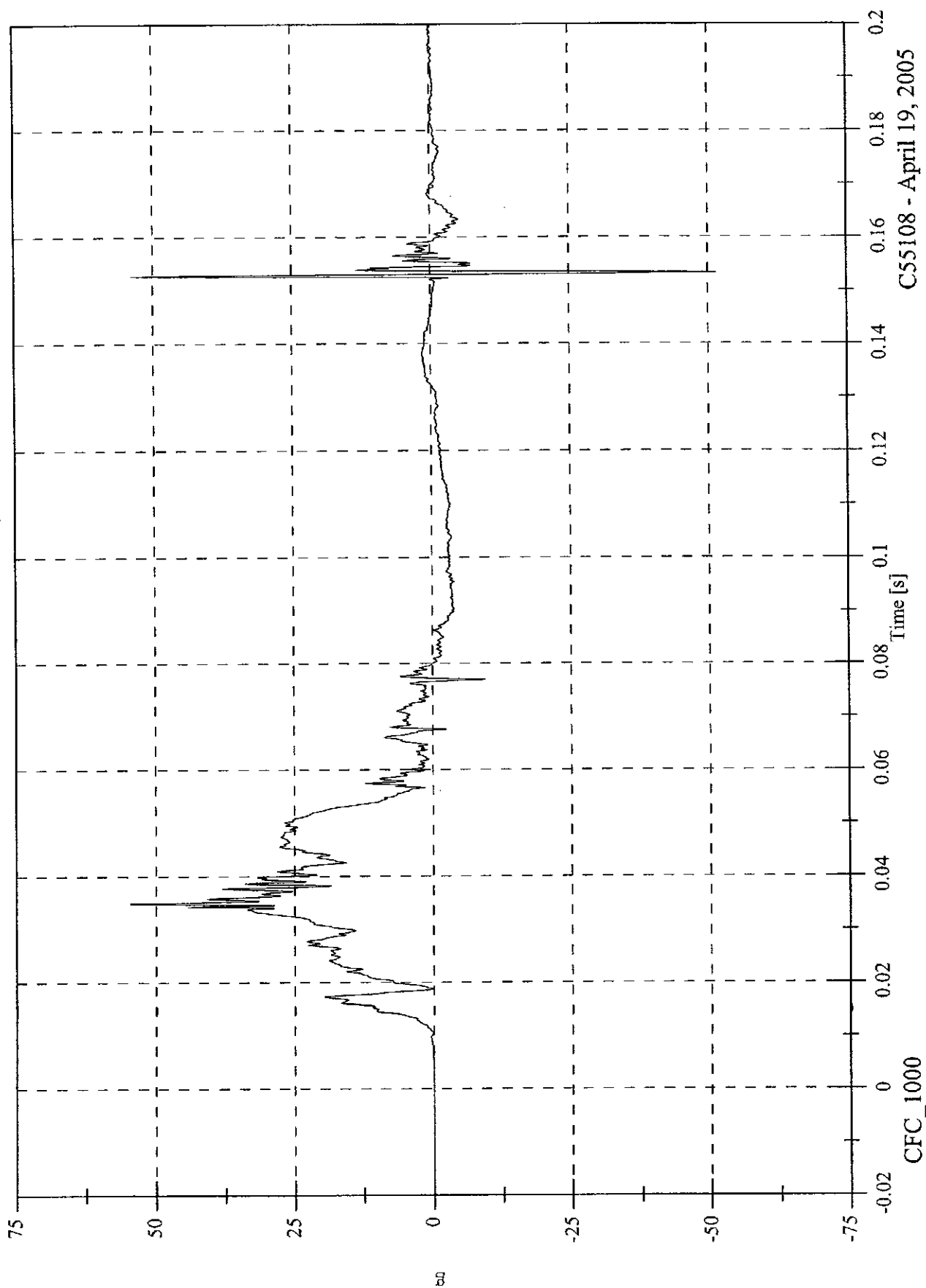
V2P1 Upper Rib Ry Velocity



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P1 Lower Rib Ry

Max: 54.5 [g] at 0.035 [s]
Min: -51.5 [g] at 0.153 [s]

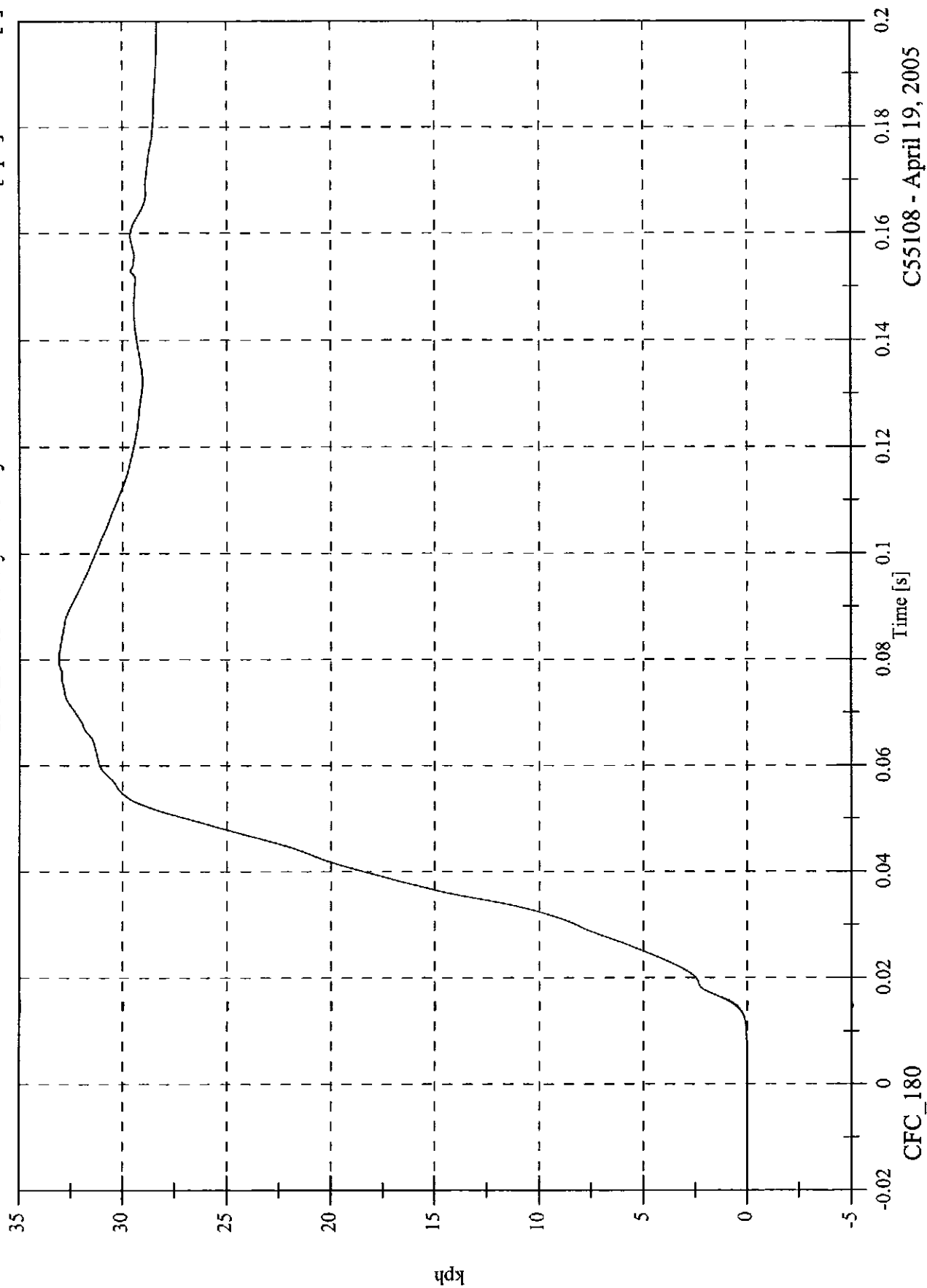


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 33.1 [kph] at 0.080 [s]
Min: -0.0 [kph] at -0.020 [s]

V2P1 Lower Rib Ry Velocity

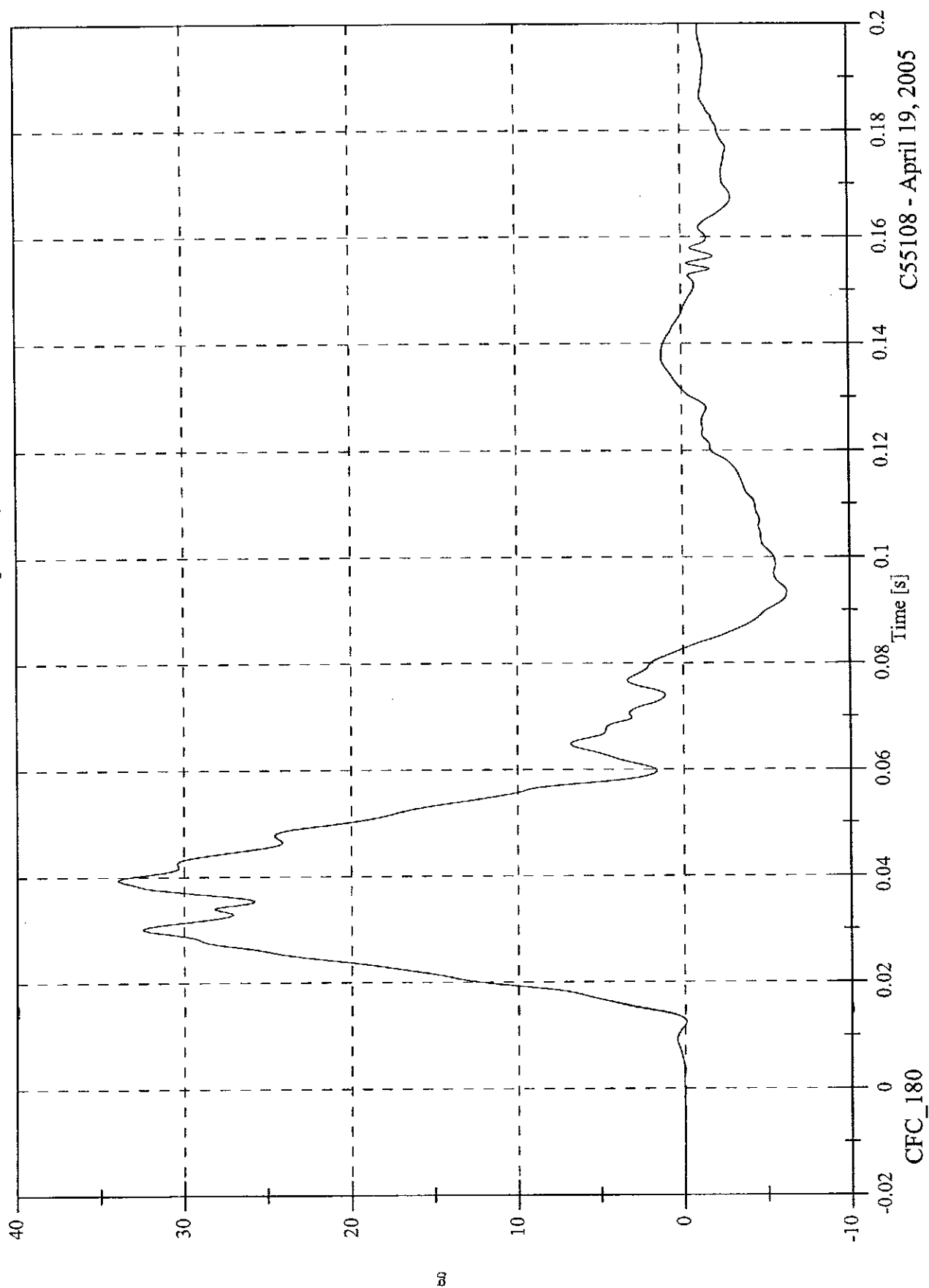


CFC_180

C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P1 Lower Spine Ry

Max: 33.9 [g] at 0.039 [s]
Min: -6.2 [g] at 0.093 [s]

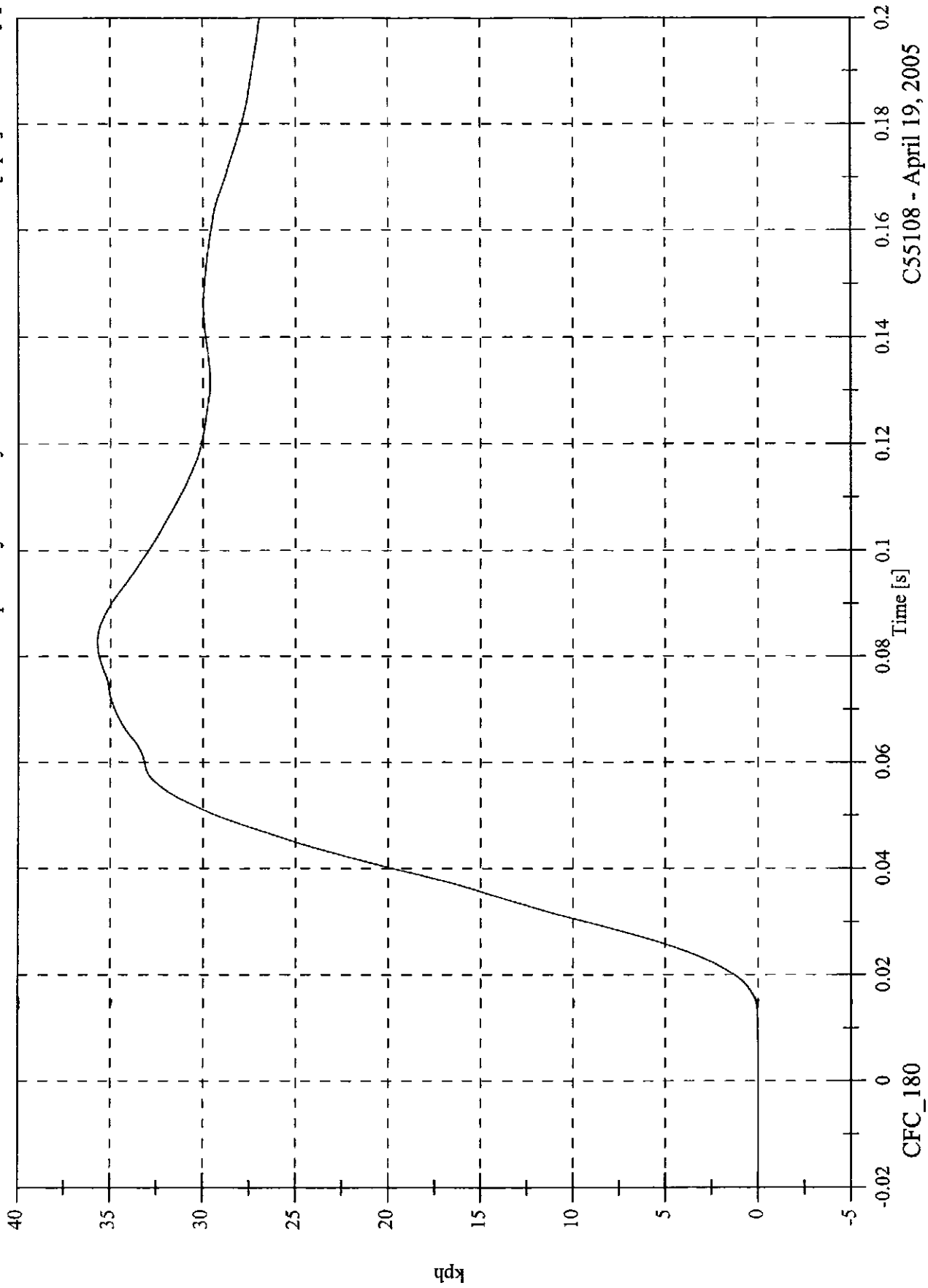


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 35.7 [kph] at 0.083 [s]
 Min: -0.0 [kph] at -0.019 [s]

V2P1 Lower Spine Ry Velocity



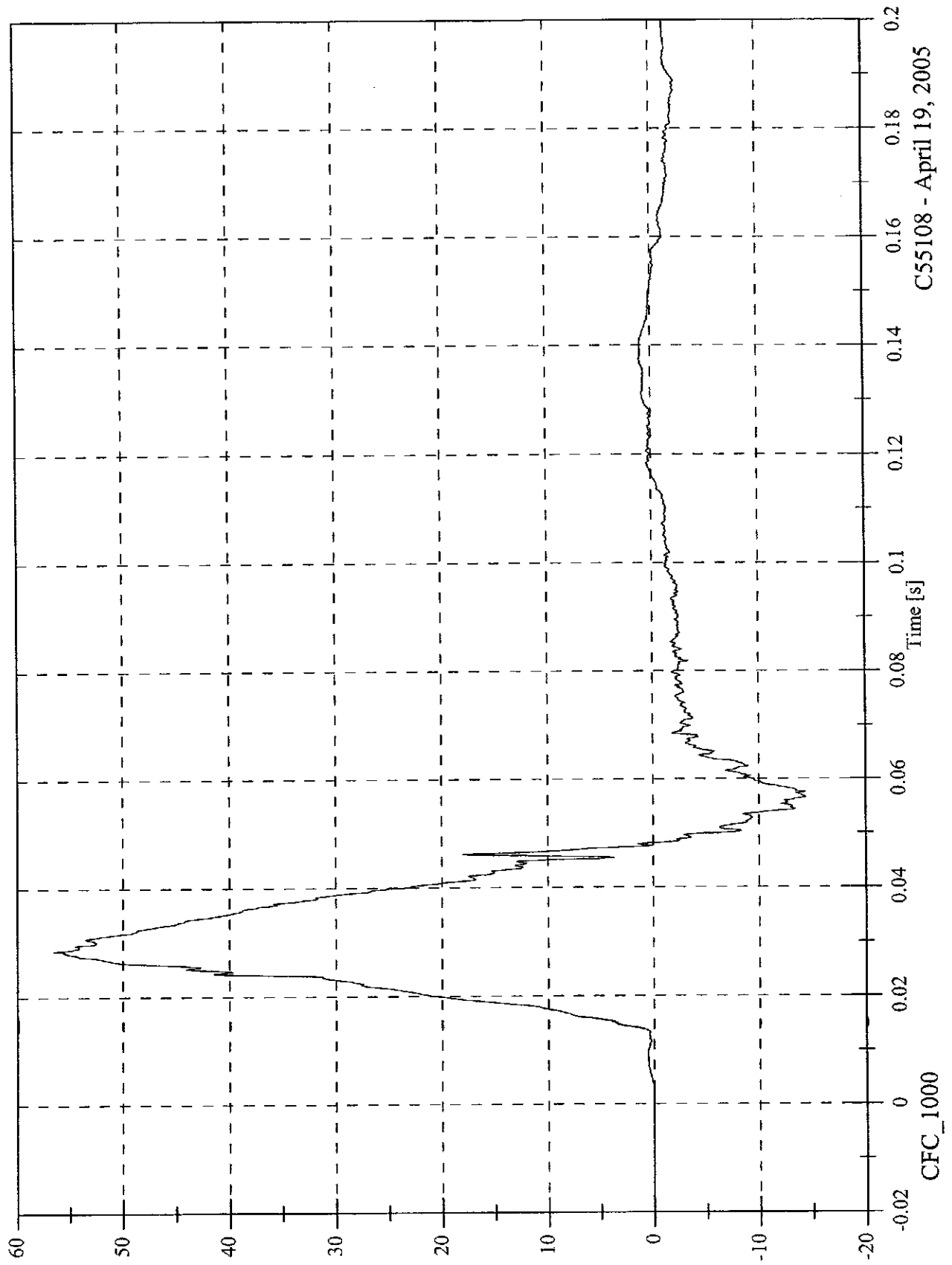
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Pelvic Ry

Max: 56.6 [g] at 0.028 [s]

Min: -14.4 [g] at 0.057 [s]

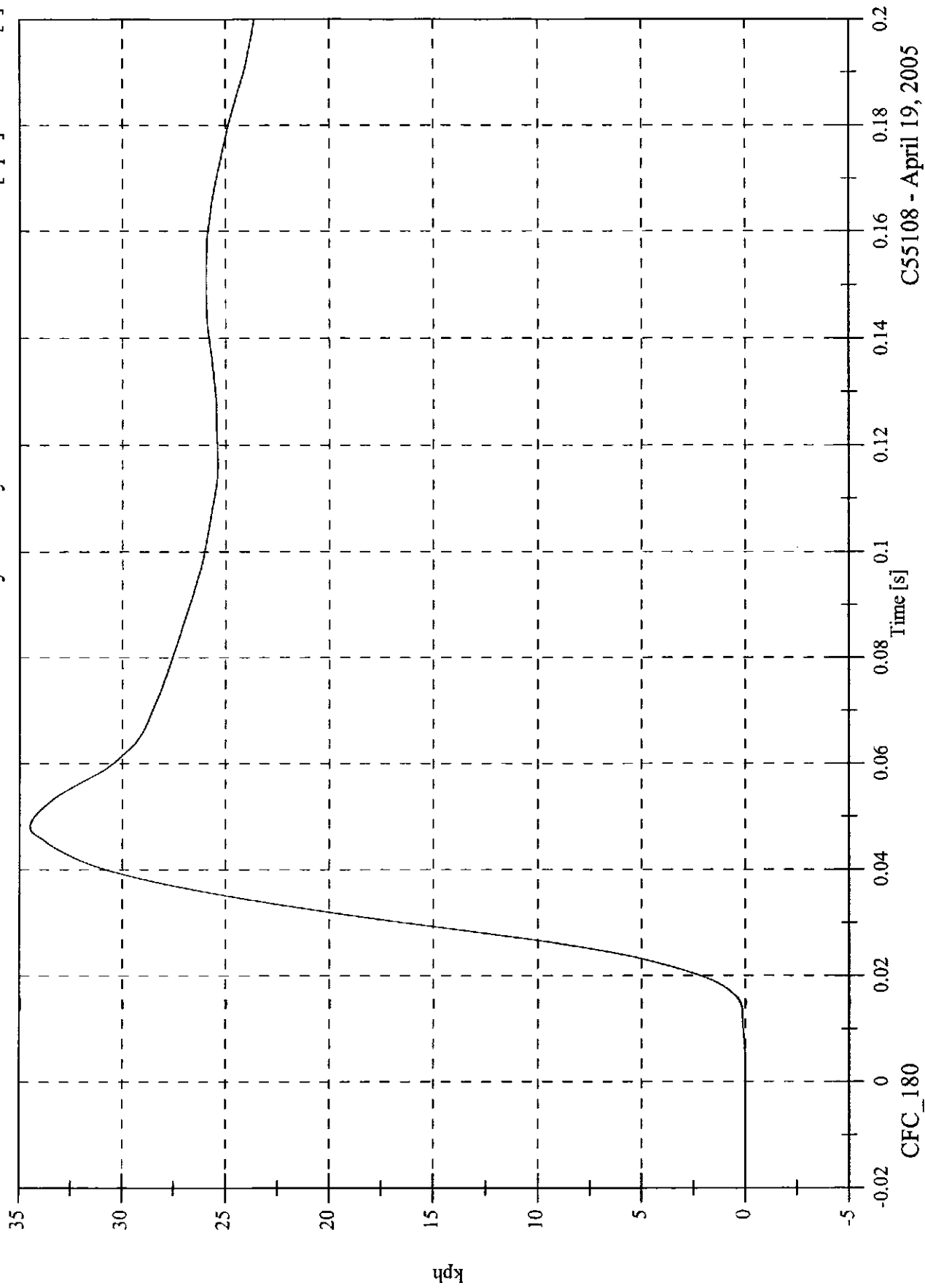


C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 34.5 [kph] at 0.048 [s]
Min: -0.0 [kph] at -0.020 [s]

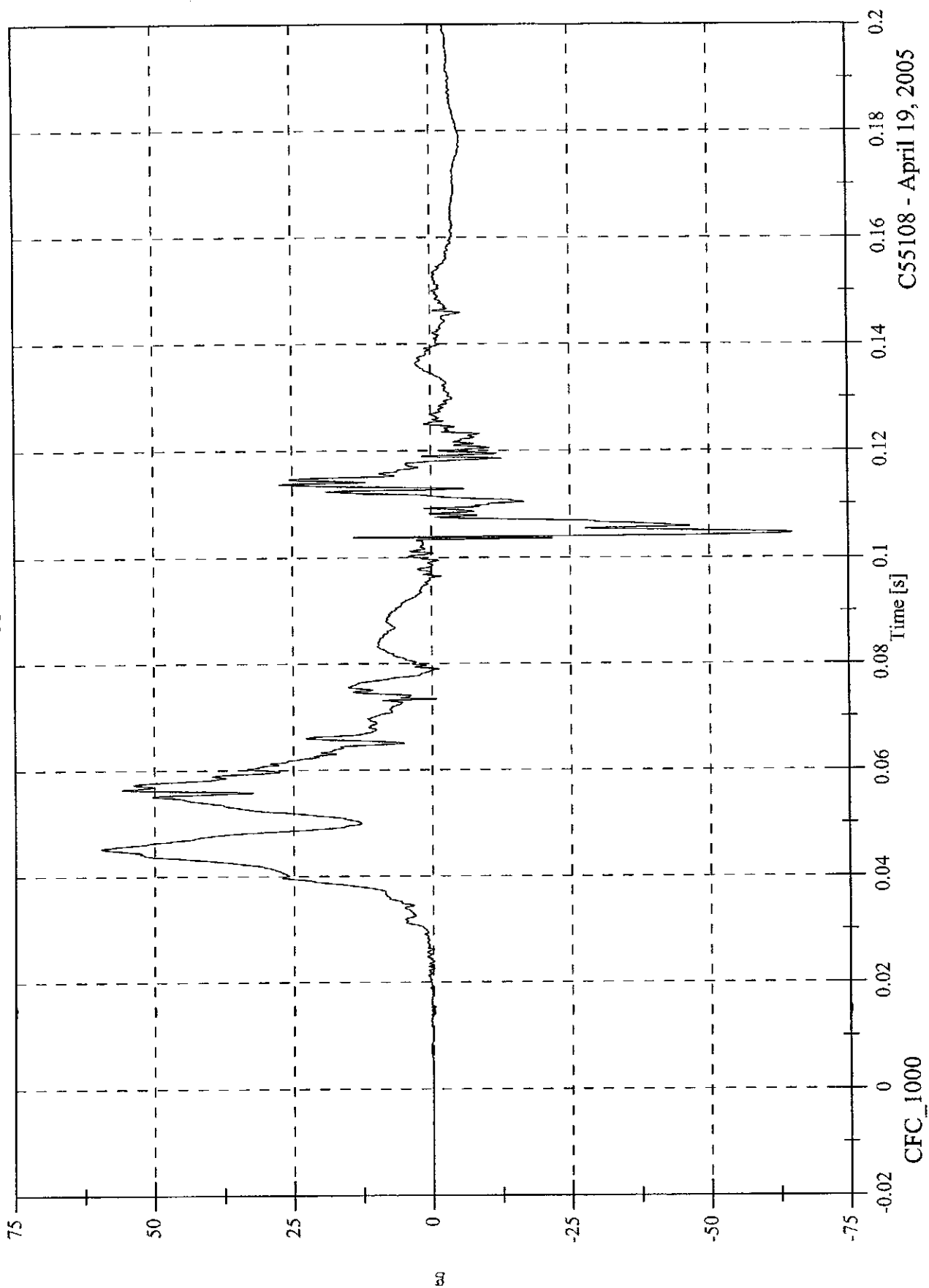
V2P1 Pelvic Ry Velocity



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P4 Upper Rib Ry

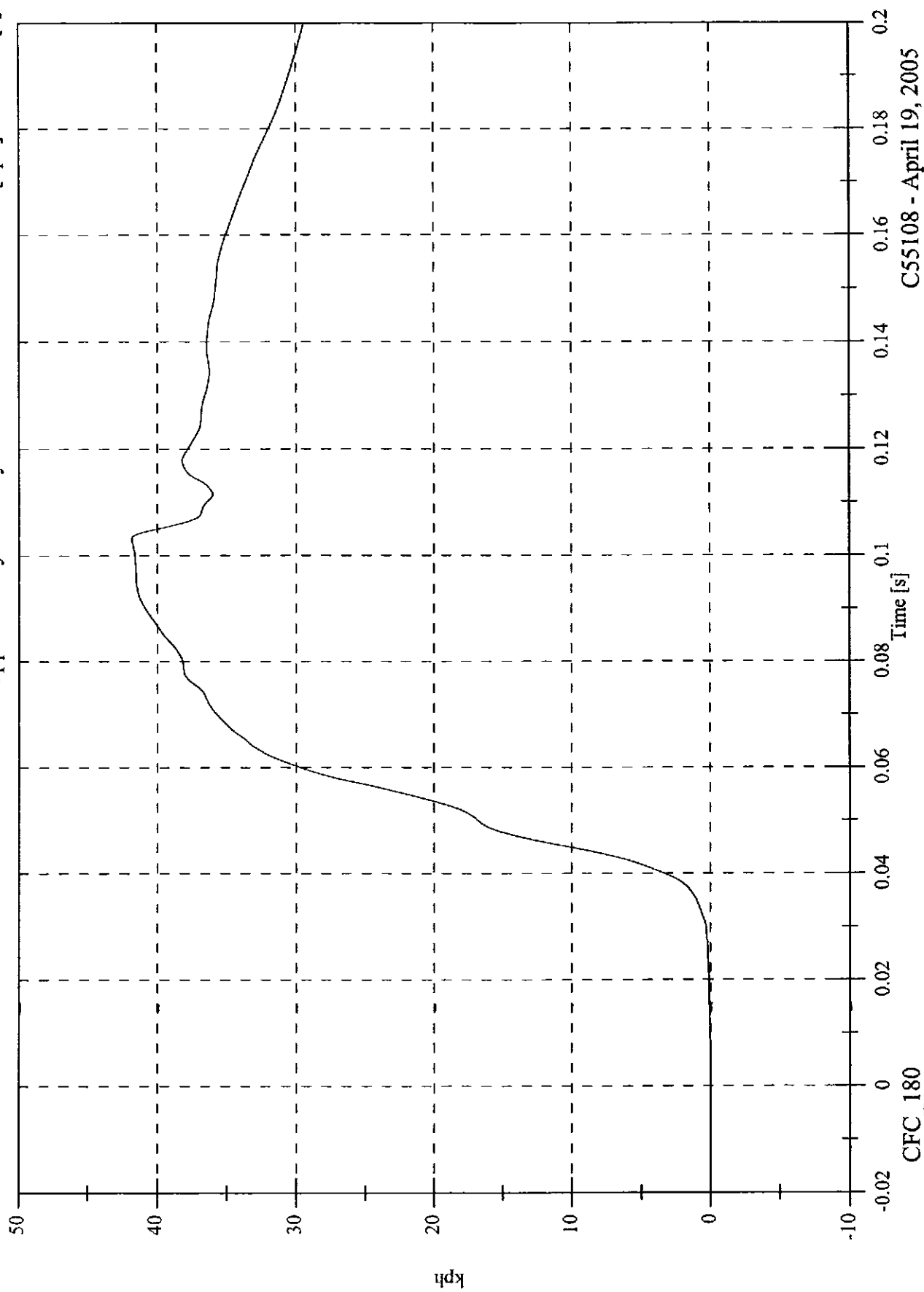
Max: 59.5 [g] at 0.045 [s]
Min: -64.9 [g] at 0.105 [s]



2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Upper Rib Ry Velocity

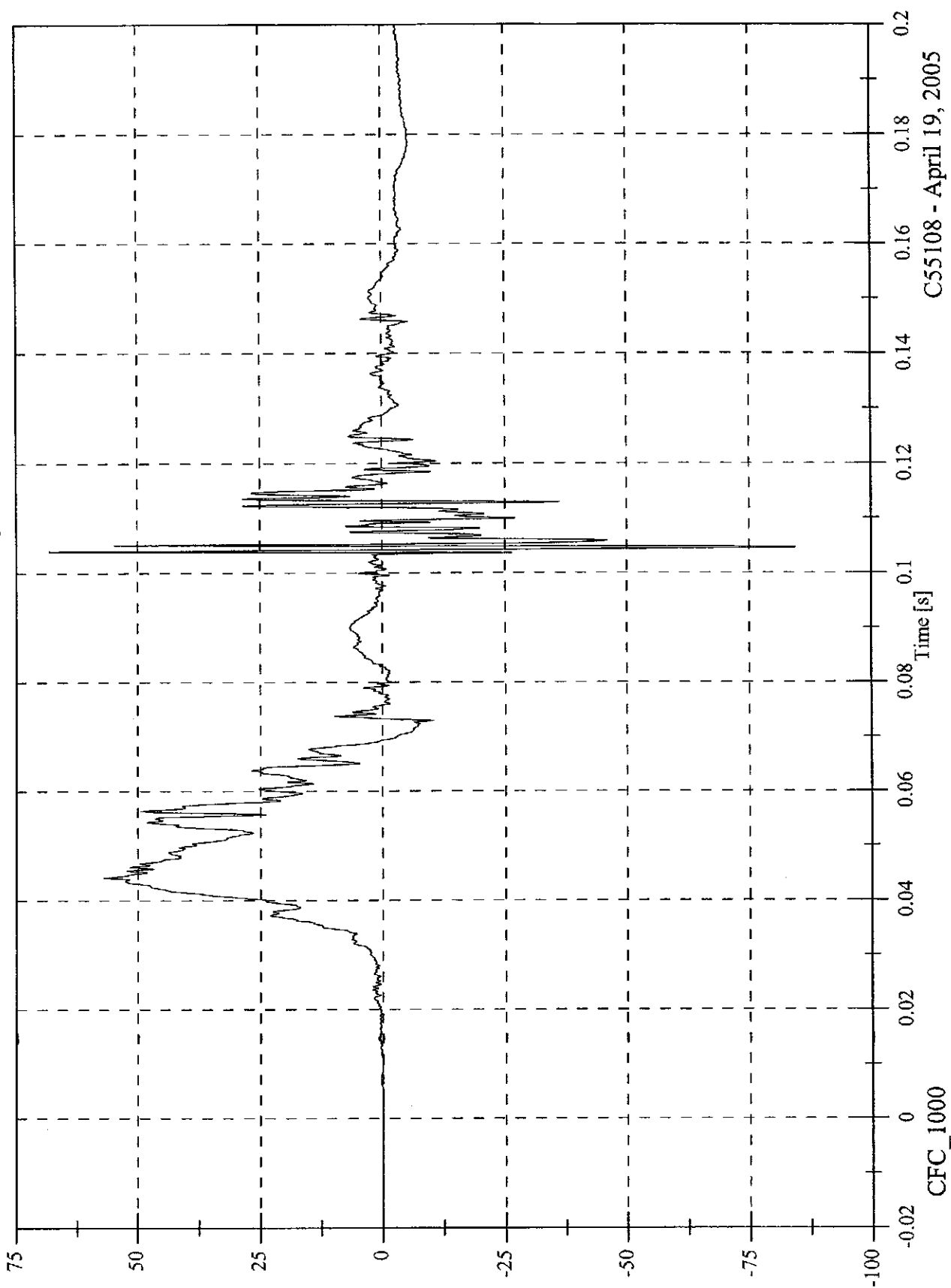
Max: 41.9 [kph] at 0.103 [s]
Min: -0.0 [kph] at -0.017 [s]



C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P4 Lower Rib Ry

Max: 68.2 [g] at 0.104 [s]
Min: -84.4 [g] at 0.105 [s]



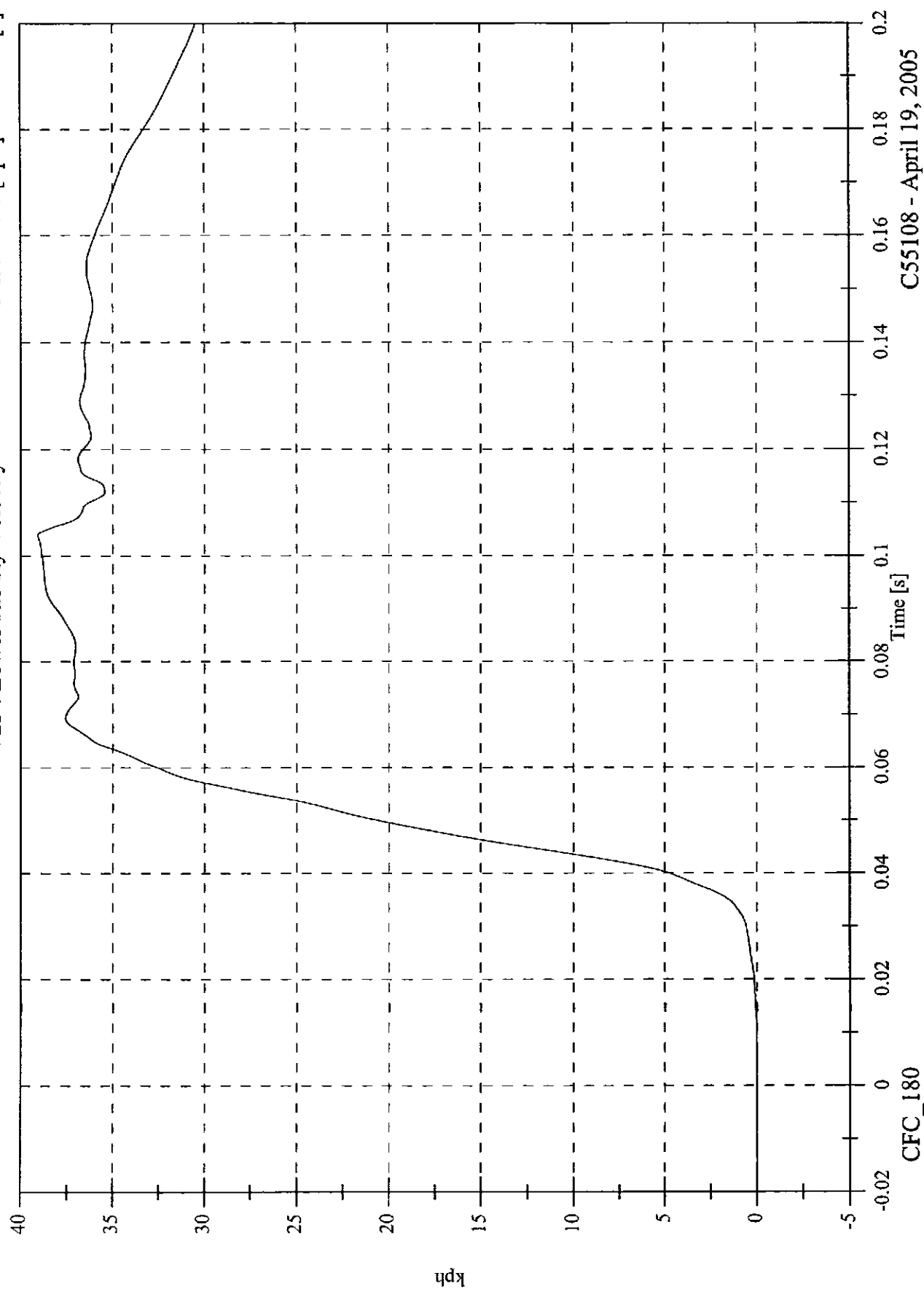
C55108 - April 19, 2005

2005 FMVSS214D Inducant Test 6 - 2005 Toyota Avalon

Max: 39.1 [kph] at 0.104 [s]

Min: -0.0 [kph] at -0.017 [s]

V2P4 Lower Rib Ry Velocity

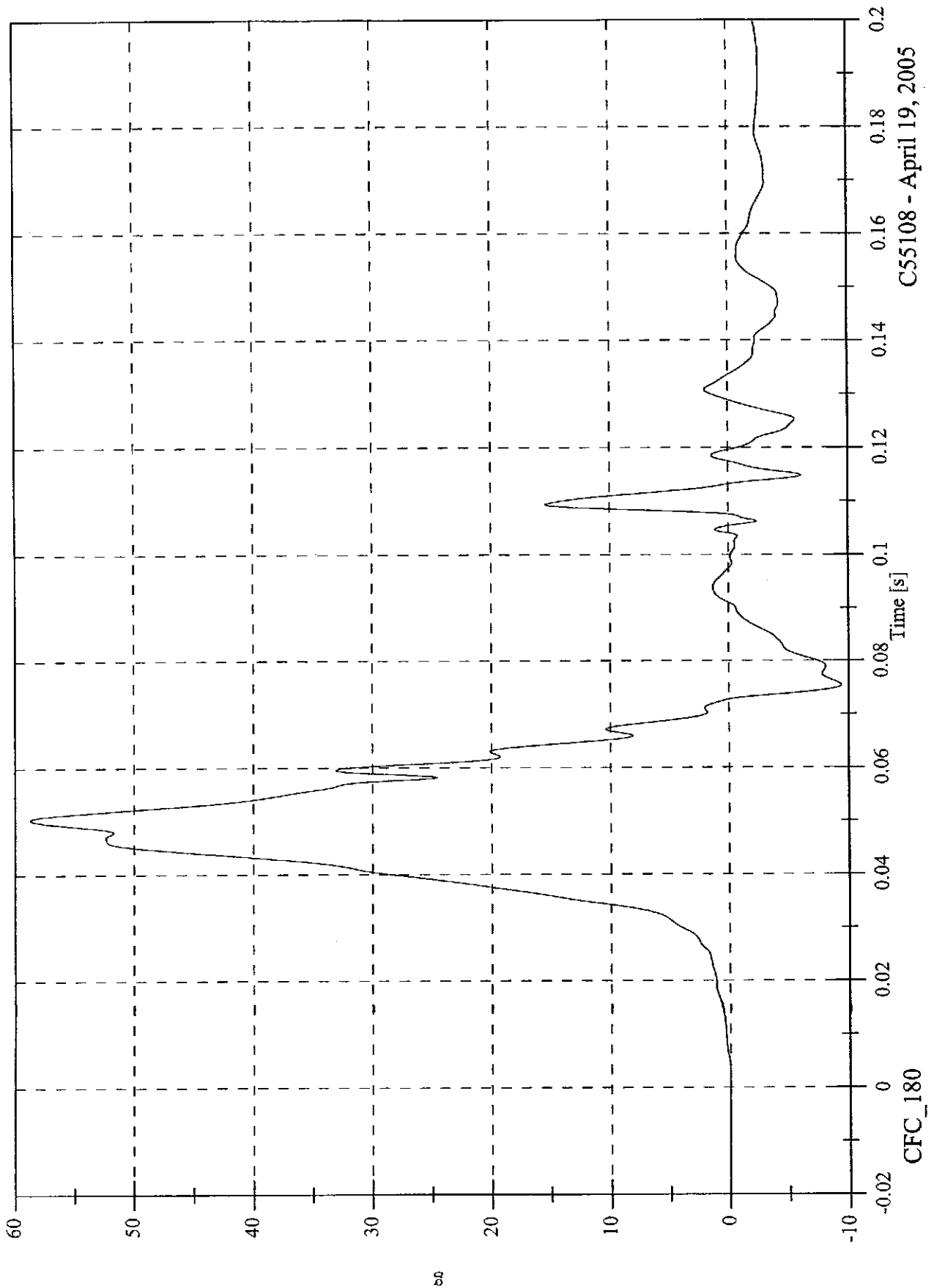


CFC_180

C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon
V2P4 Lower Spine Ry

Max: 58.7 [g] at 0.050 [s]
Min: -9.4 [g] at 0.075 [s]



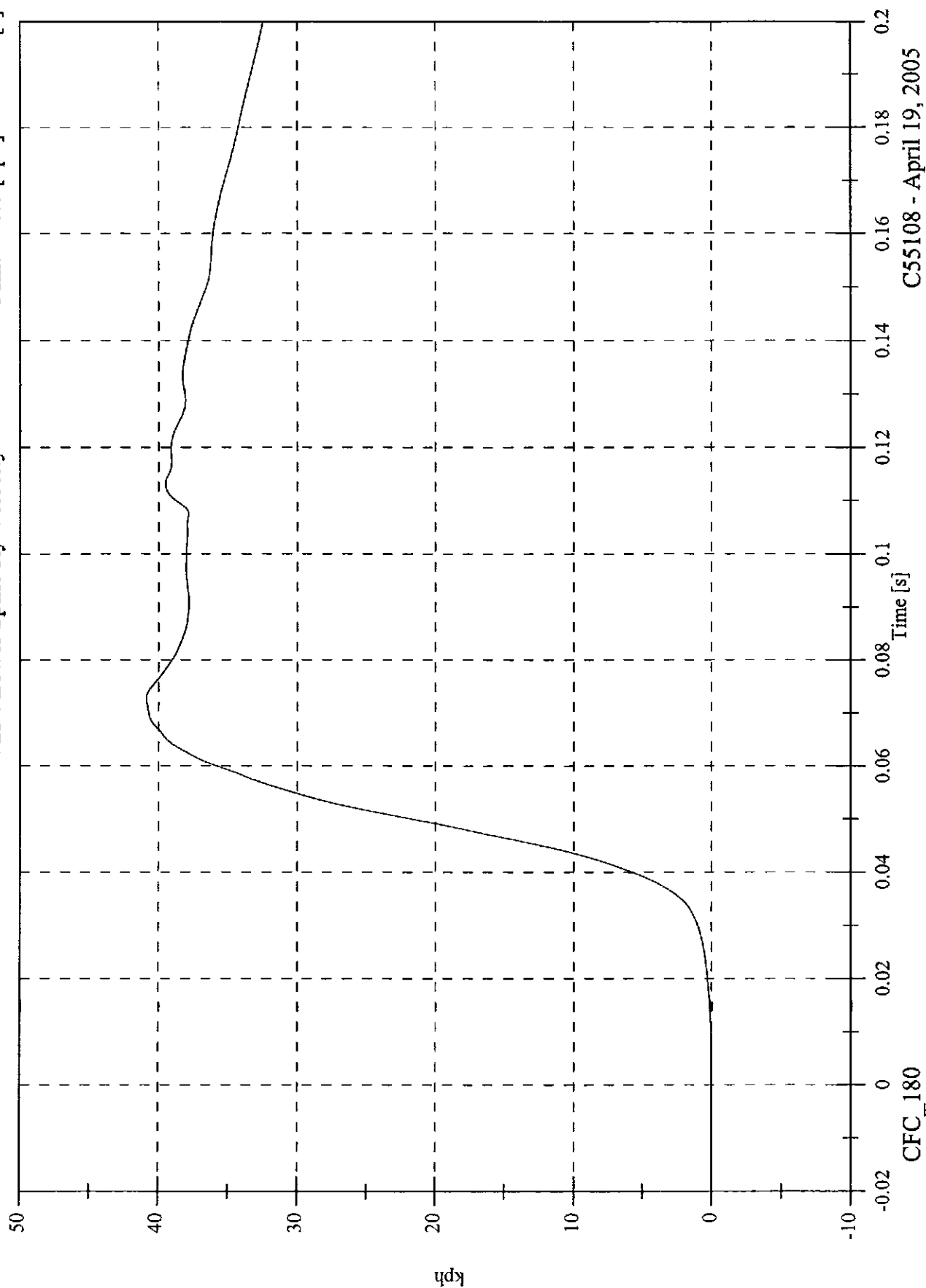
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 40.9 [kph] at 0.073 [s]

Min: -0.0 [kph] at -0.020 [s]

V2P4 Lower Spine Ry Velocity

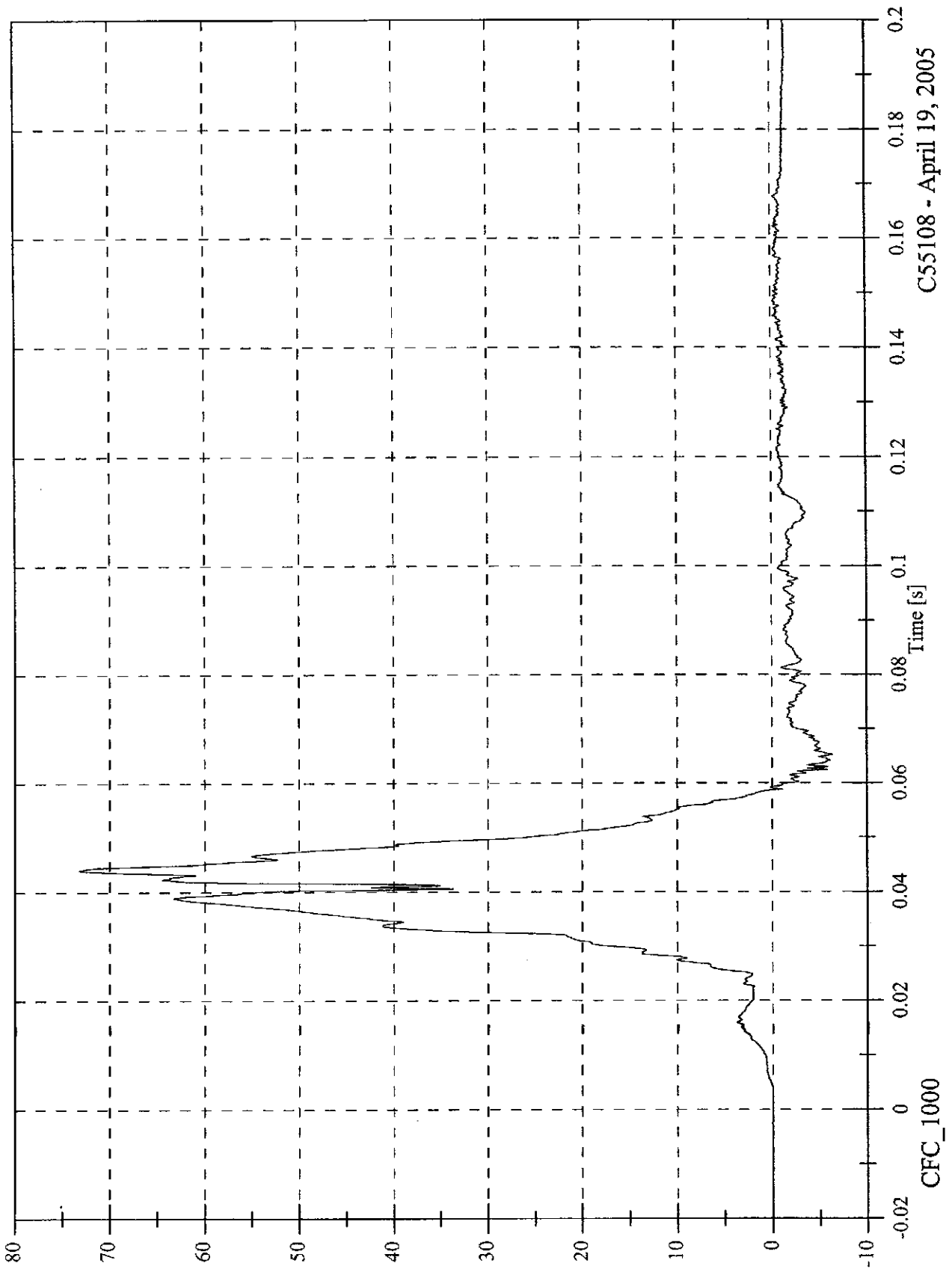


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Pelvic Ry

Max: 73.2 [g] at 0.044 [s]
Min: -6.3 [g] at 0.065 [s]

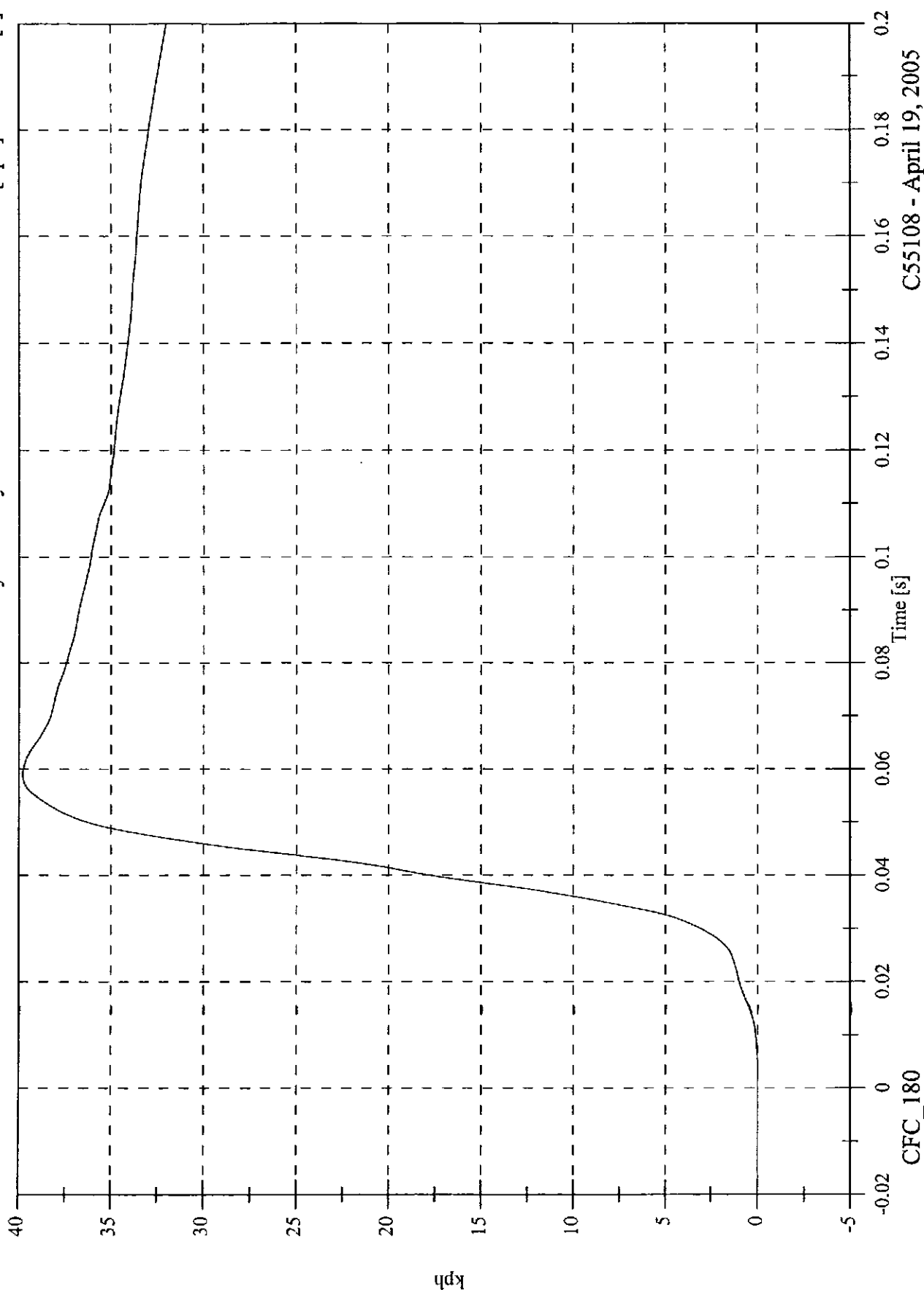


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 39.8 [kph] at 0.059 [s]
Min: -0.0 [kph] at -0.019 [s]

V2P4 Pelvic Ry Velocity

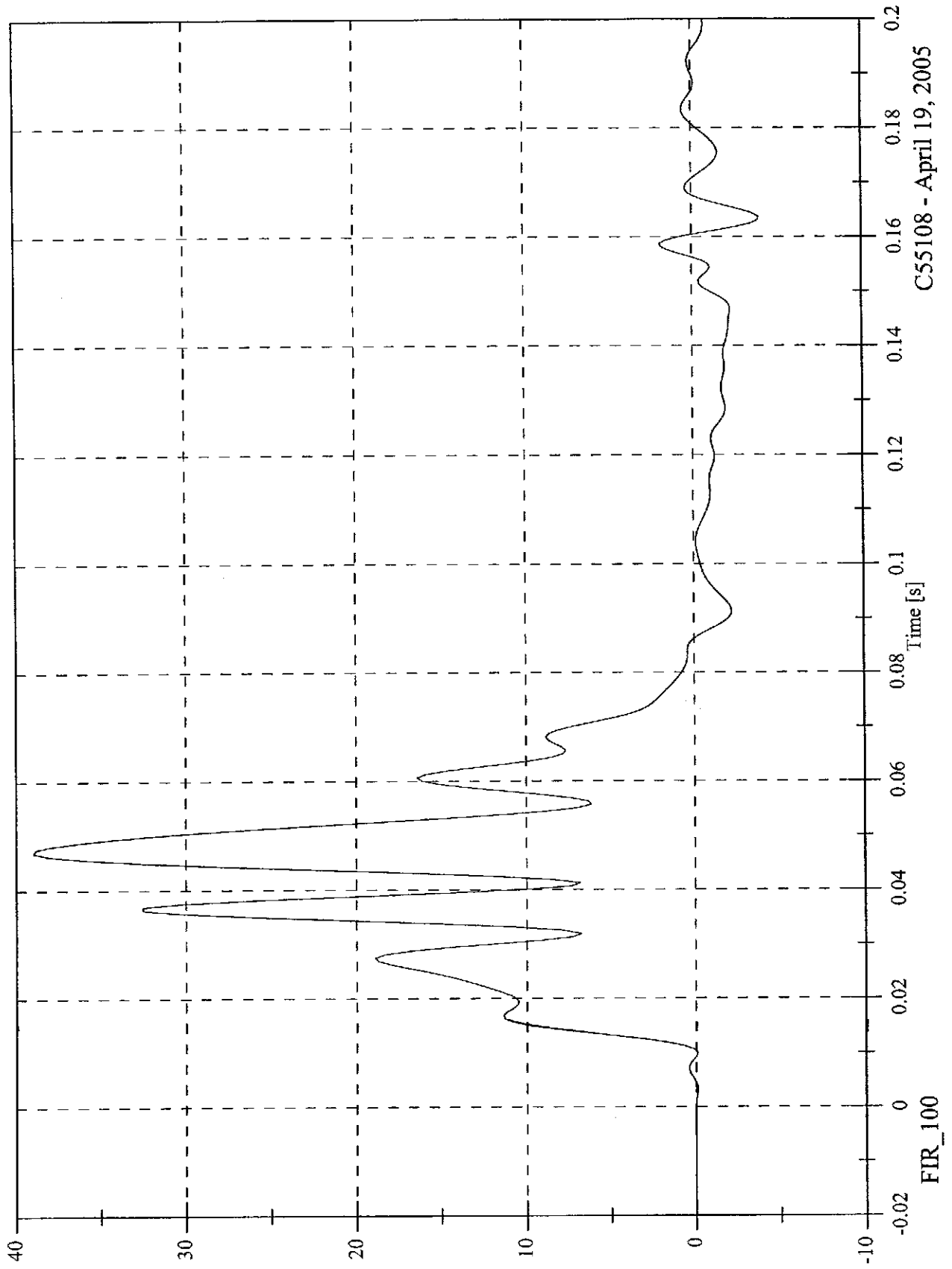


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Upper Rib Ry

Max: 39.0 [g] at 0.047 [s]
Min: -4.0 [g] at 0.164 [s]



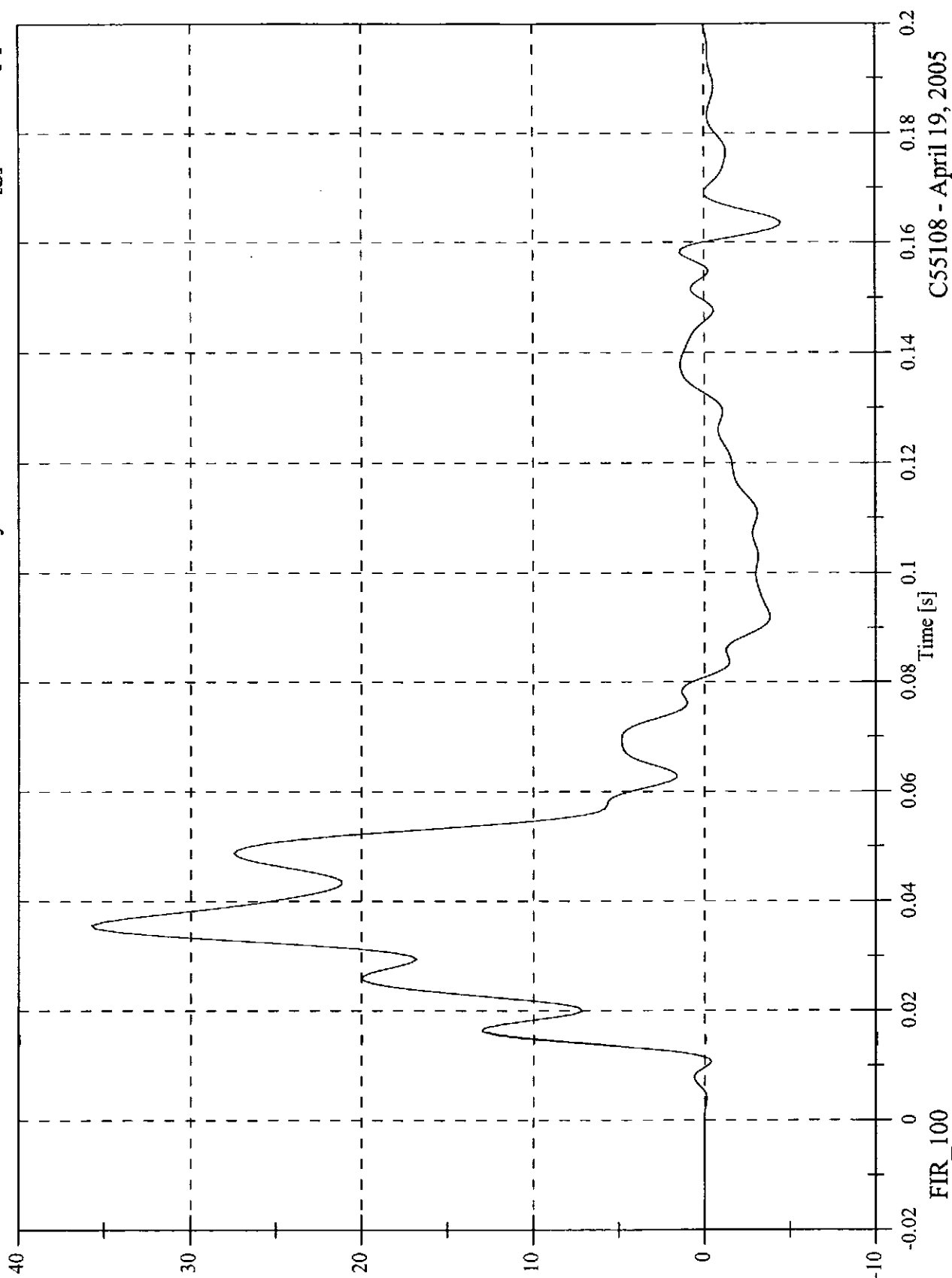
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P1 Lower Rib Ry

Max: 35.7 [g] at 0.036 [s]

Min: -4.5 [g] at 0.164 [s]

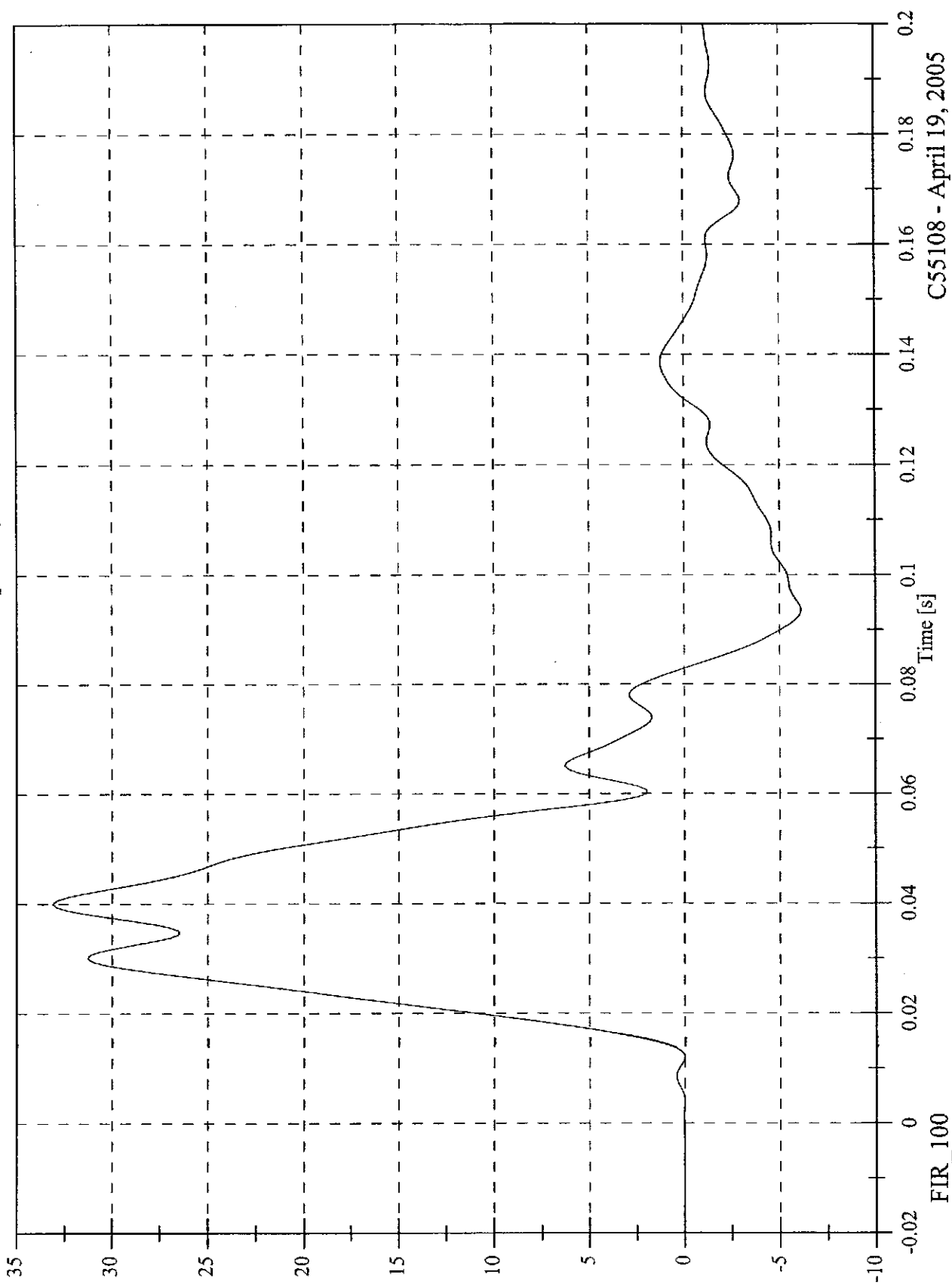


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 33.1 [g] at 0.040 [s]
Min: -6.1 [g] at 0.094 [s]

V2P1 Lower Spine Ry

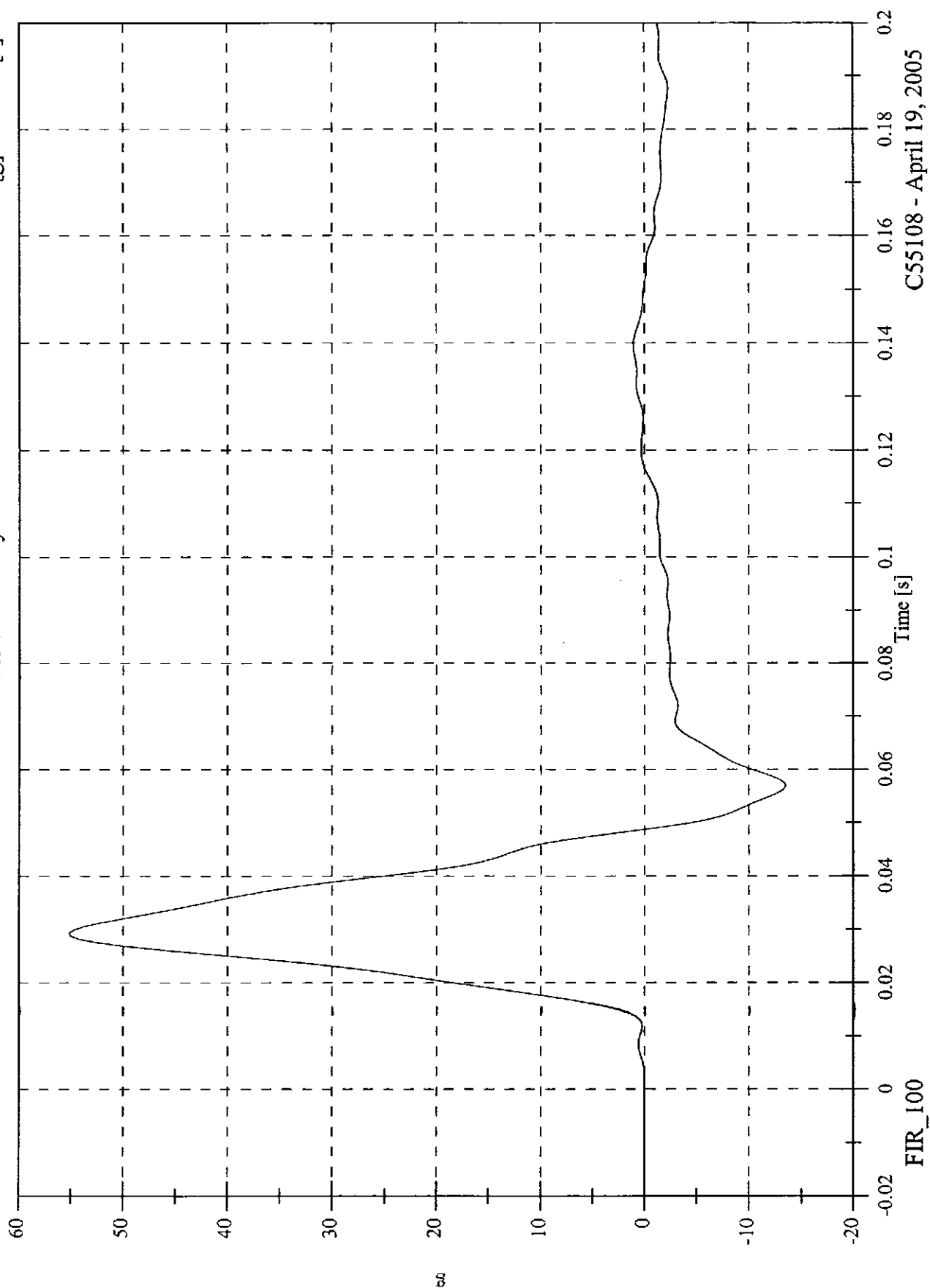


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 55.2 [g] at 0.029 [s]
 Min: -13.5 [g] at 0.057 [s]

V2P1 Pelvic Ry

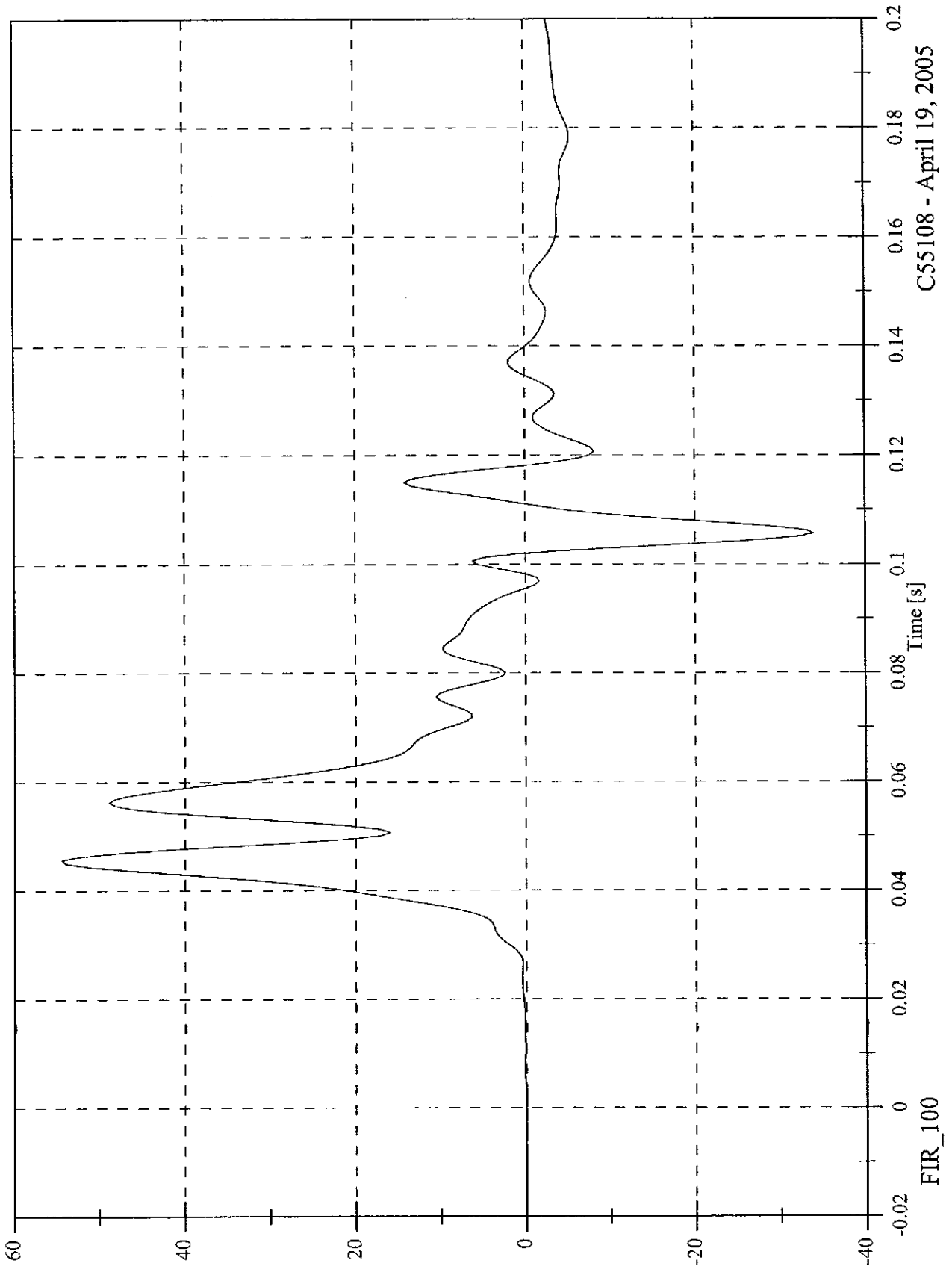


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

Max: 54.5 [g] at 0.046 [s]
Min: -34.0 [g] at 0.106 [s]

V2P4 Upper Rib Ry

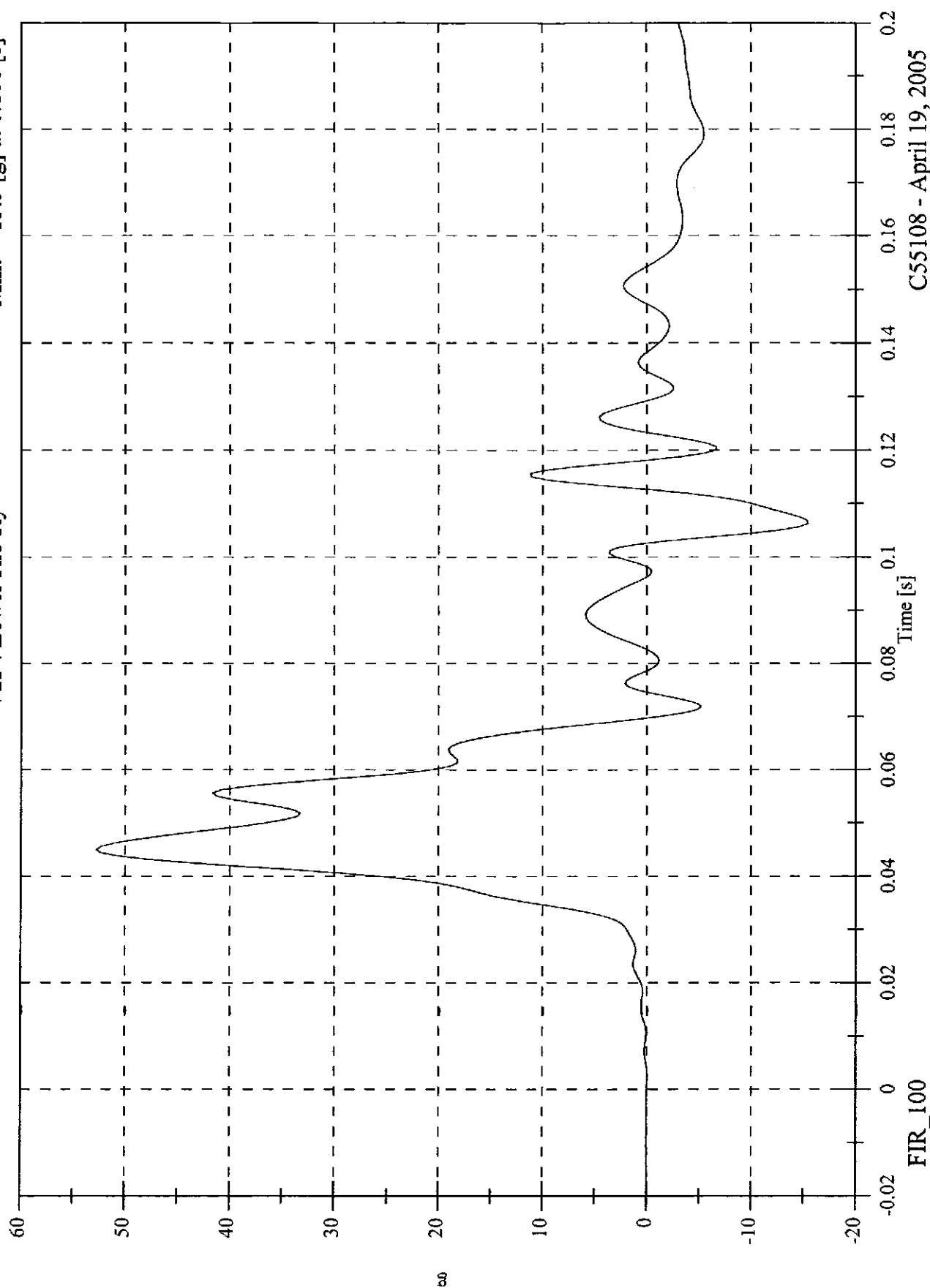


C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Lower Rib Ry

Max: 52.8 [g] at 0.045 [s]
Min: -15.5 [g] at 0.106 [s]



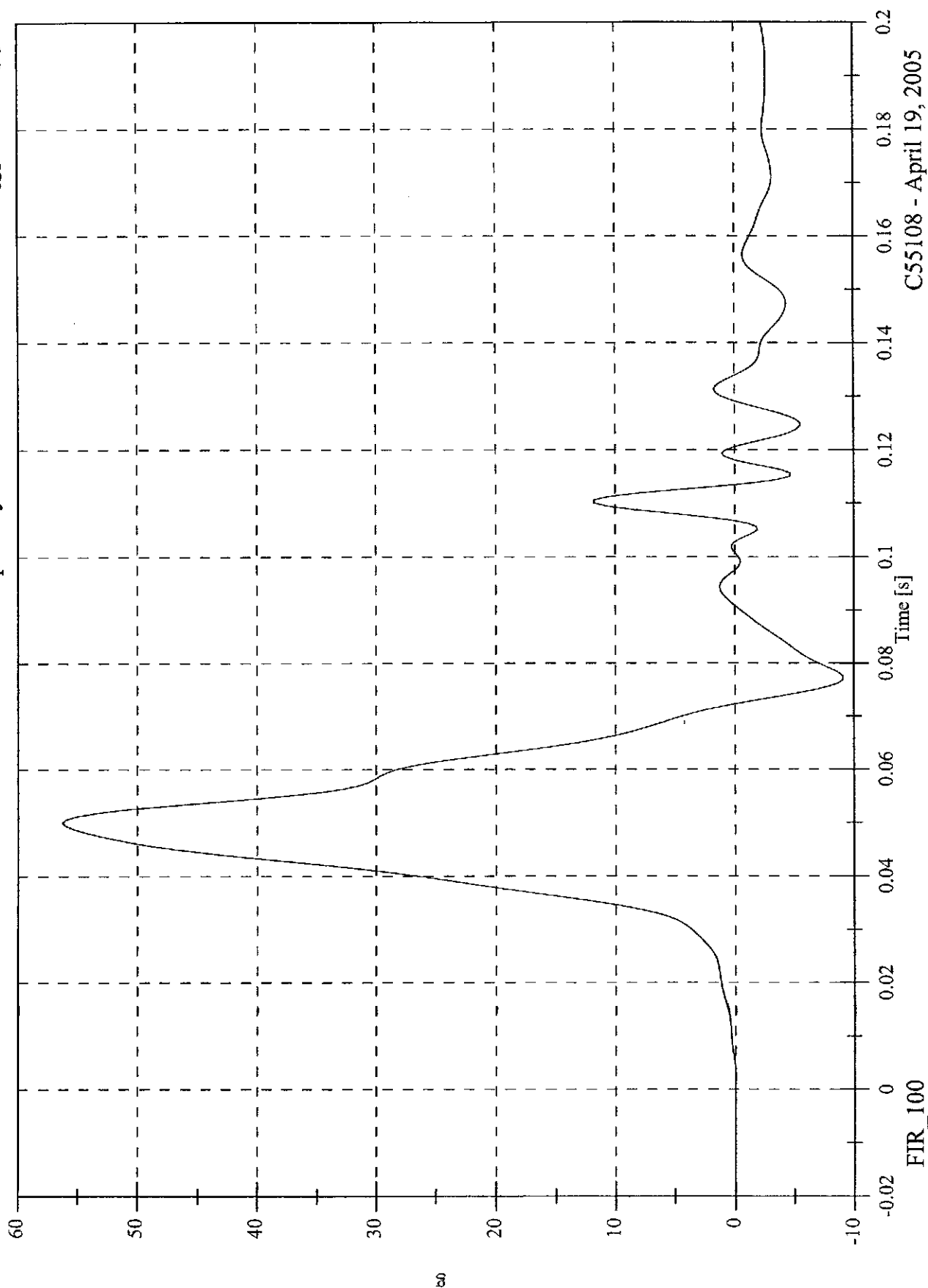
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Lower Spine Ry

Max: 56.3 [g] at 0.050 [s]

Min: -9.1 [g] at 0.077 [s]



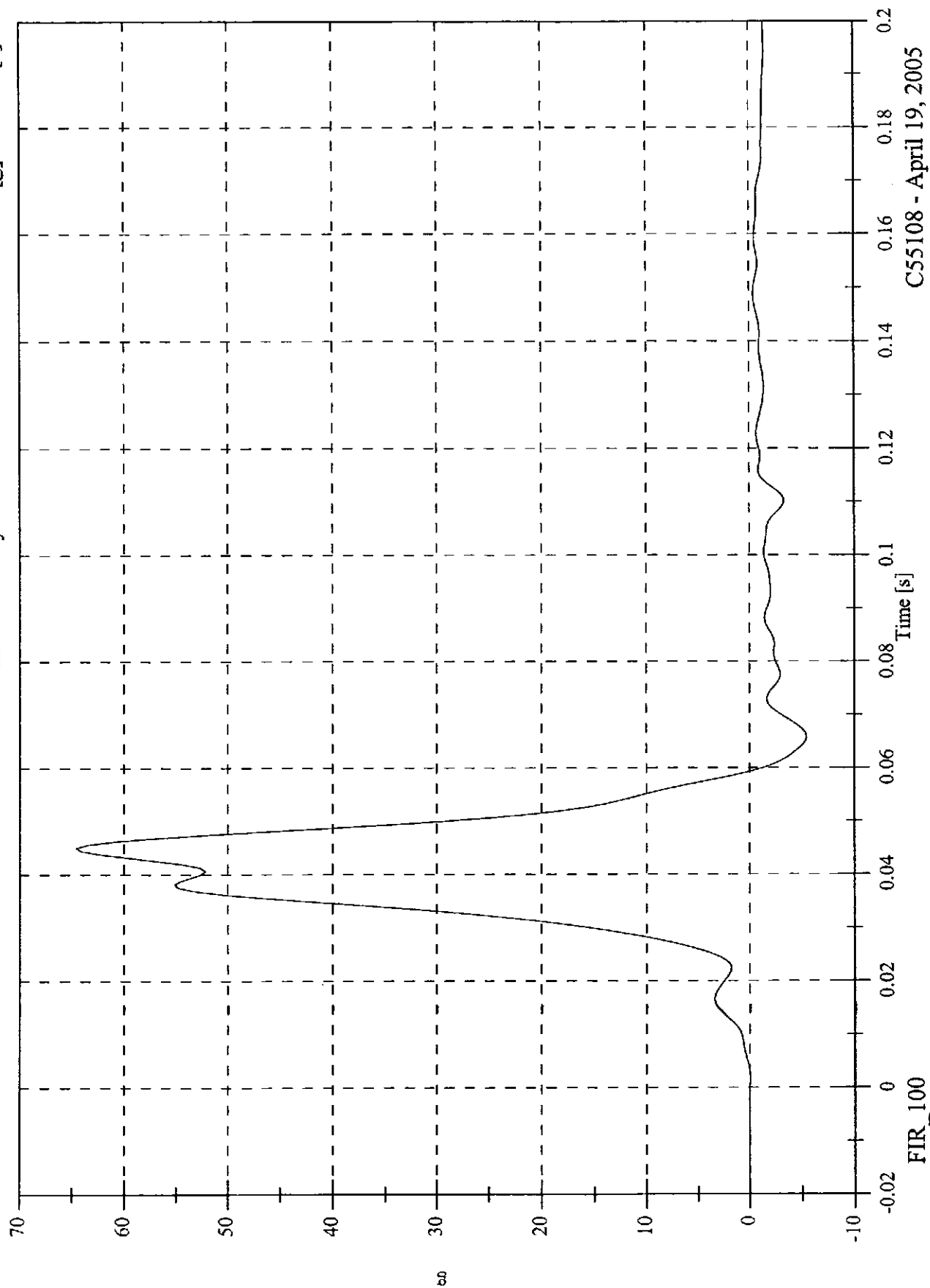
C55108 - April 19, 2005

2005 FMVSS214D Indicant Test 6 - 2005 Toyota Avalon

V2P4 Pelvic Ry

Max: 64.6 [g] at 0.045 [s]

Min: -5.4 [g] at 0.066 [s]



C55108 - April 19, 2005

APPENDIX C

SID HYBRID III CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION
CONFIGURED FOR LEFT SIDE IMPACT

Date: March 7, 2005; March 7, 2005

Sequential Test Number:

1.4; 1.3

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID H3 269 NO.:		SID H3 270 NO.:	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	899	899	900	899
RH- Rib Height (mm)	501 - 521	503	503	503	503
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	234	234	234	234
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	514	513
SW- Knee Pivot to Floor (mm)	490 - 505	495	495	495	495
HW- Hip Width (mm)	356 - 391	381	381	384	384
THORAX IMPACTS					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	38.00	35.00	38.00	35.00
PROBE SPEED (m/s)	4.27 - 4.33	4.30	4.27	4.31	4.29
UPPER RIB (g's)	37 - 46	42.12	43.48	44.55	42.81
LOWER RIB (g's)	37 - 46	40.25	42.45	40.50	41.56
LOWER SPINE (g's)	15 - 22	19.91	21.24	21.88	21.87
PELVIS IMPACT					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	38.00	35.00	34.00	35.00
PROBE SPEED (m/s)	4.27 - 4.33	4.30	4.27	4.32	4.27
PELVIS (g's)	40 - 60	57.95	49.98	46.02	56.69

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 269

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 1
Date: March 7, 2005 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 1
Date: March 7, 2005 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	381

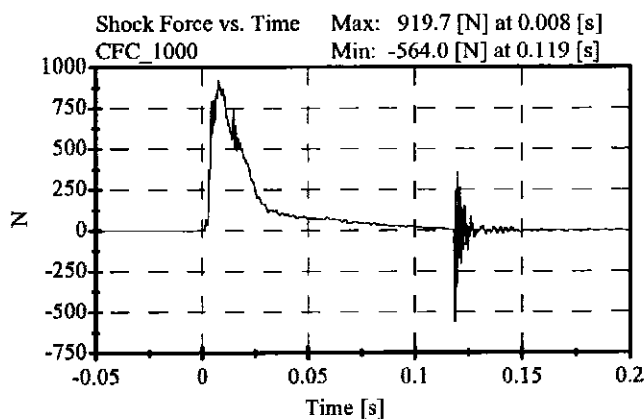
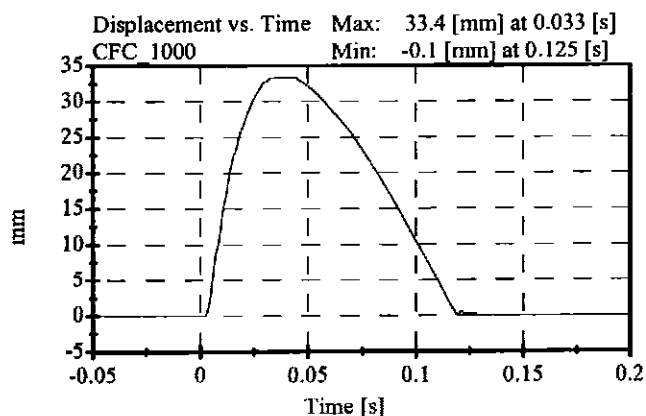
REMARKS: None

Shock Impact Low (3.05 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: January 14, 2005

Sequential Test Number: 1 File: 269SL 01-14-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	30.00 %	Passed
Displacement:	30.00-35.00 mm	33.39 mm	Passed
Maximum Force:	836.00-1125.00 N	919.71 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	269		
Damper Setting:	5		



Shock Impact Med (4.27 m/s)

PRE TEST

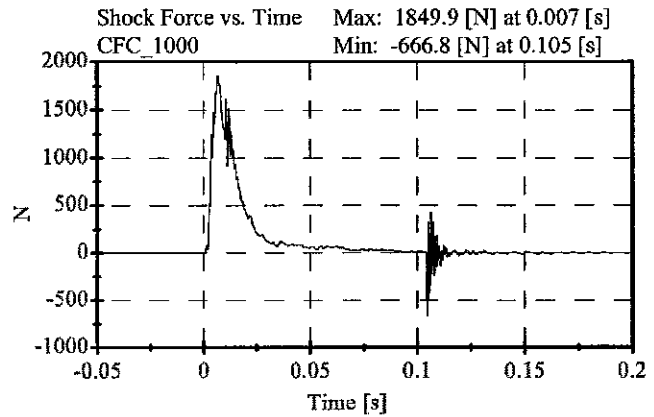
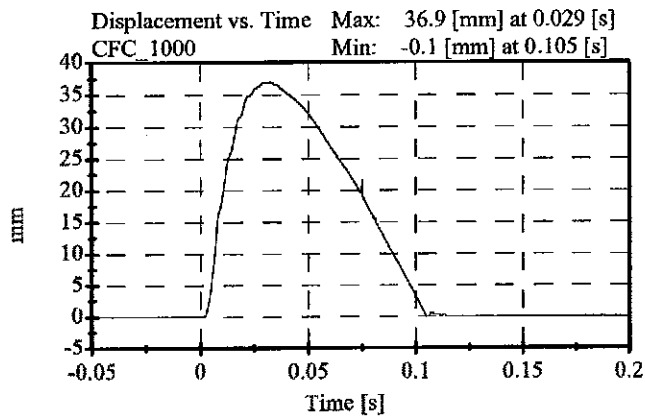
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: January 14, 2005

Sequential Test Number: 1 File: 269SM2 01-14-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	30.00 %	Passed
Displacement:	32.00-37.00 mm	36.94 mm	Passed
Maximum Force:	1730.00-2099.00 N	1849.91 N	Passed

Impact Test Velocity: 4.27 m/s
Damper Identification: 269
Damper Setting: 5

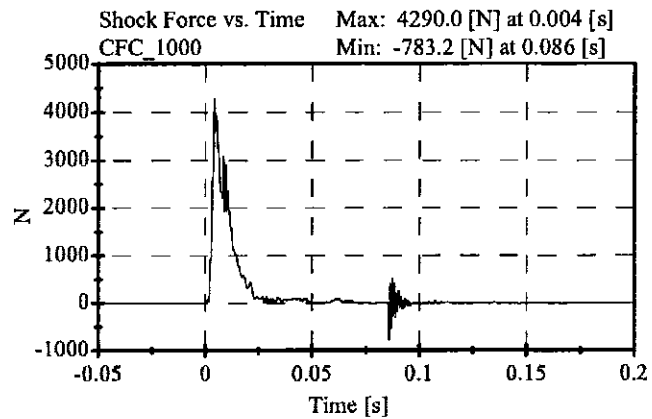
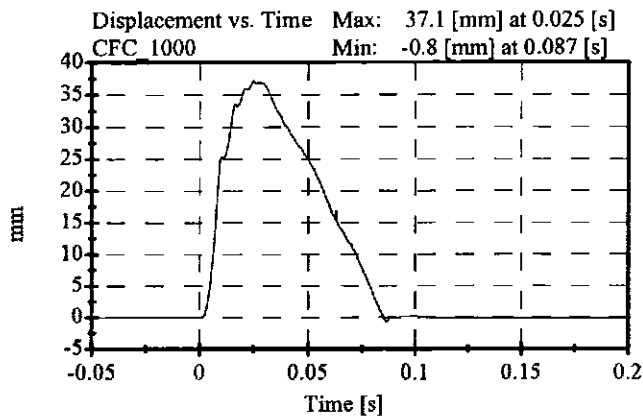


Shock Impact High (6.10 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: January 14, 2005

Sequential Test Number: 1 File: 269SH 01-14-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	30.00 %	Passed
Displacement:	33.00-40.00 mm	37.12 mm	Passed
Maximum Force:	3741.00-4448.00 N	4290.04 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	269		
Damper Setting:	5		

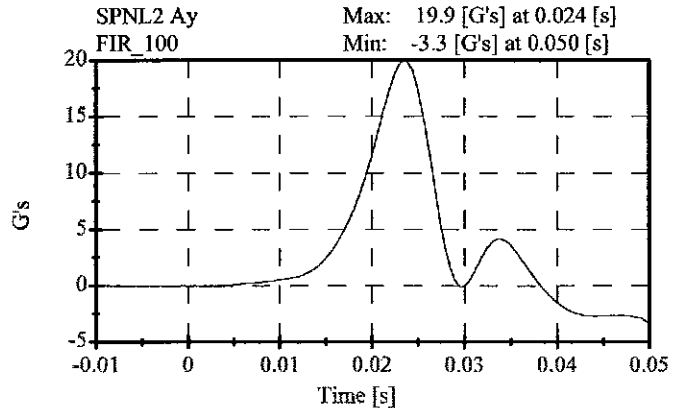
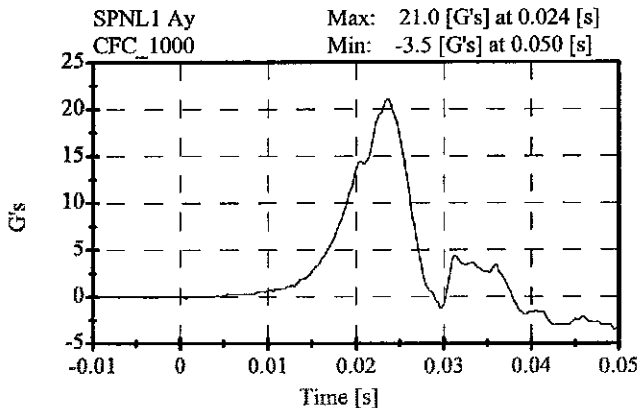
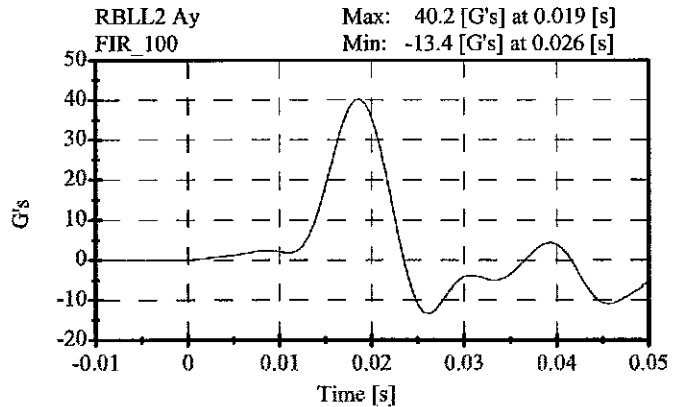
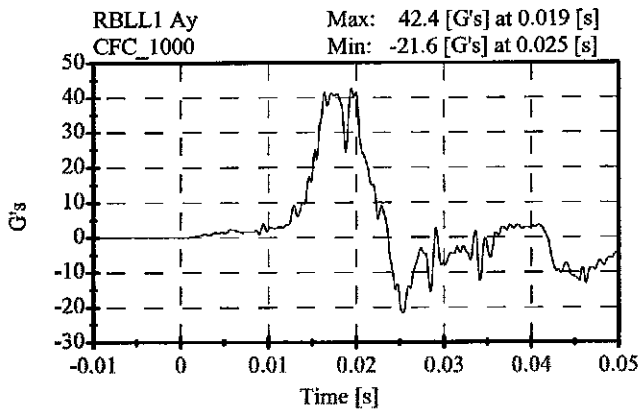
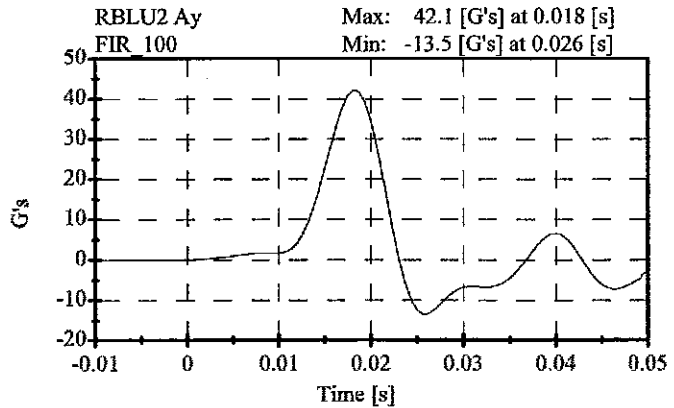
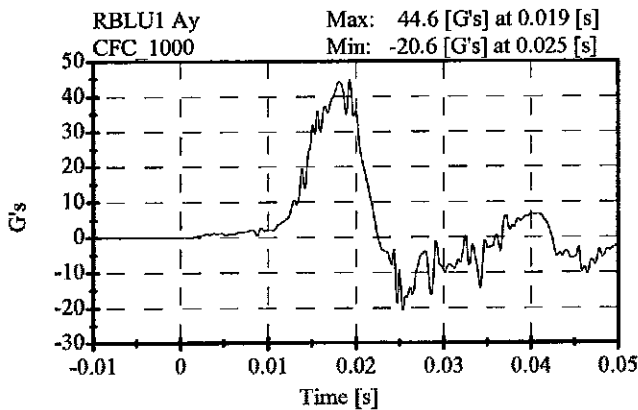


Thorax Impact
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 03-04-05

Sequential Test Number: 1 File: 269T 03-04-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	42.12 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	40.25 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	19.91 G's	Passed

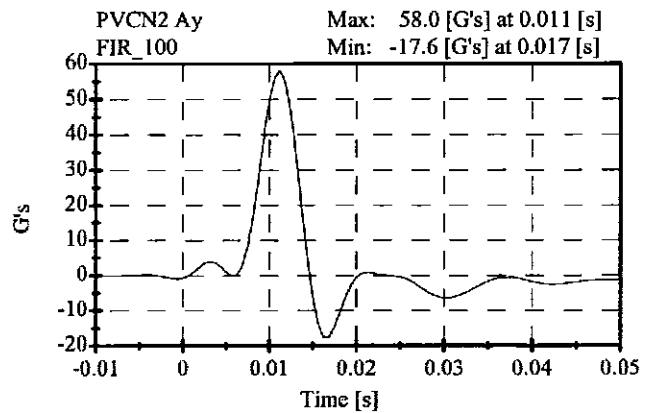
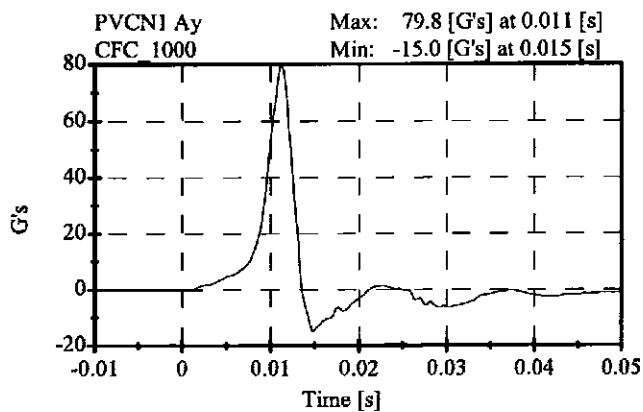


Pelvic Impact
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 03-04-05

Sequential Test Number: 1 File: 269P 03-04-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.30 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	57.95 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



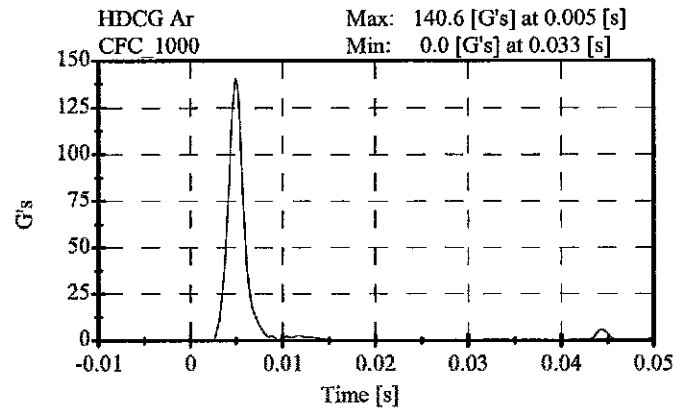
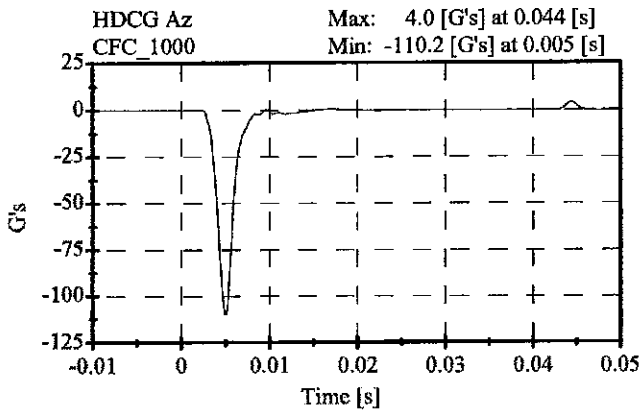
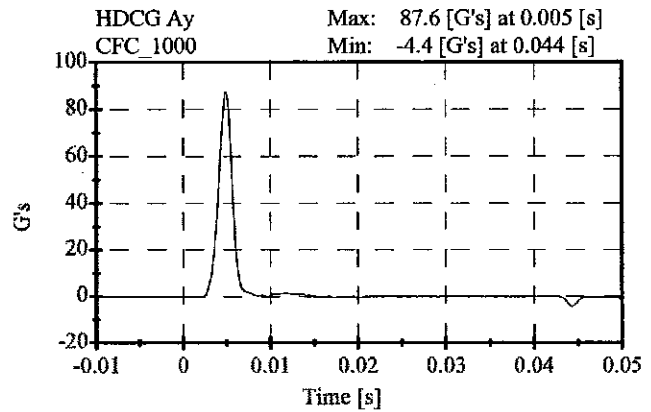
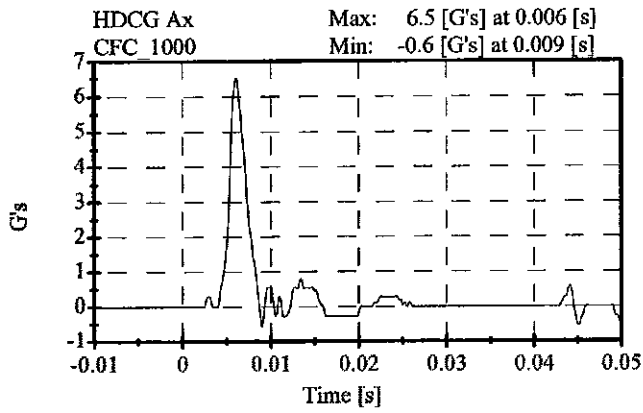
Head Drop
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 03-03-05

Sequential Test Number: 1 File: 269H2 03-03-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	140.55 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	6.53 Gs	Passed
Curve PerCent NonModal:	< 15%	4.24 %	Passed



Neck Test**PRE TEST****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 270

Sequential Test Number: 1 File: 269N2 03-03-05

Date: 03-03-05

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.03 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.13 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.01 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.10 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	70.86 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	61.10 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	84.08 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	52.80 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	8.80 ms	Passed

**Neck Test
PRE TEST**

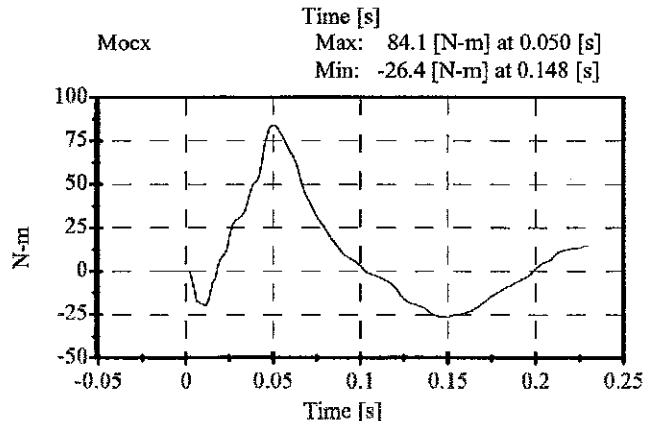
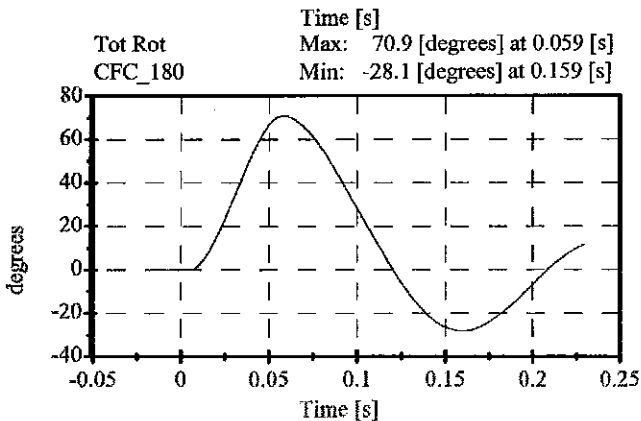
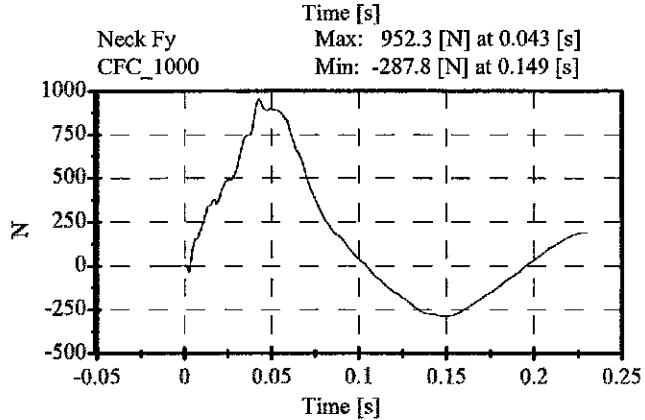
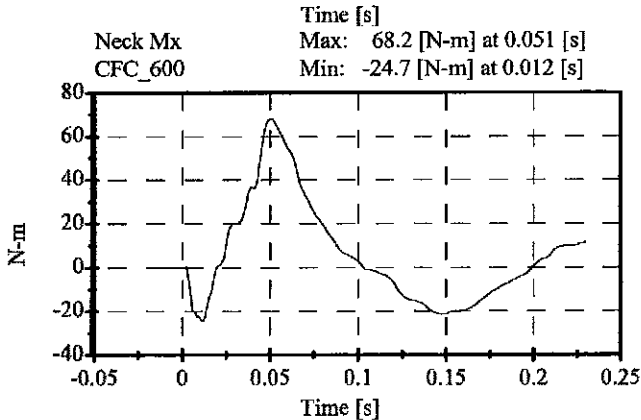
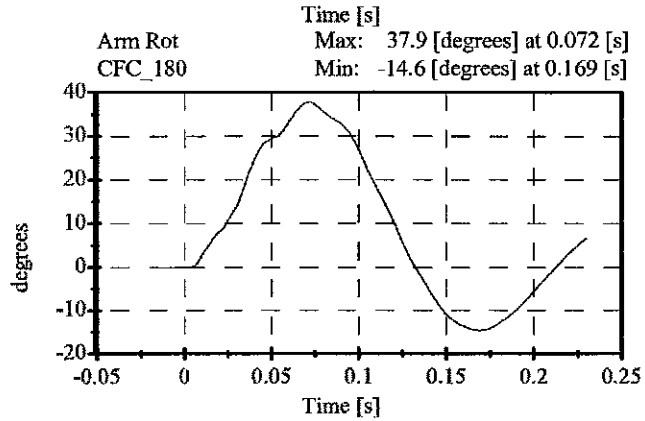
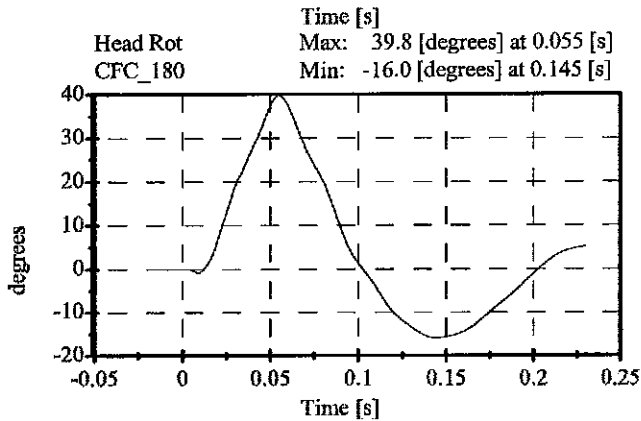
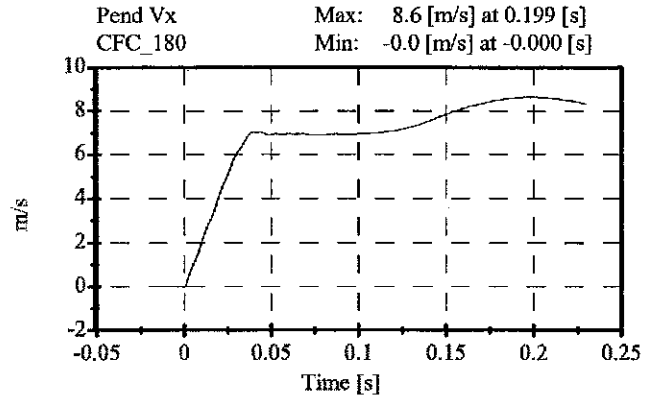
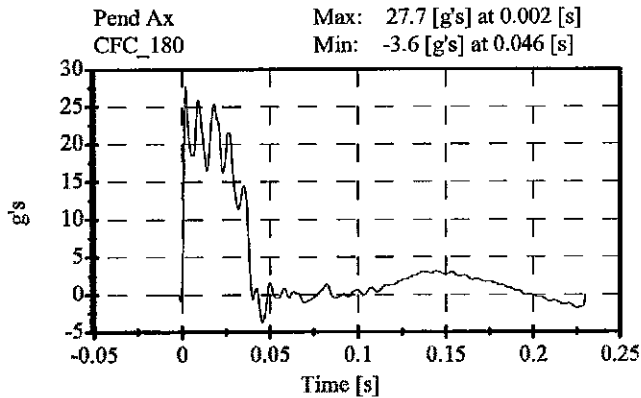
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

Date: 03-03-05

Sequential Test Number: 1 File: 269N2 03-03-05

Laboratory Technician: B. Swiecicki



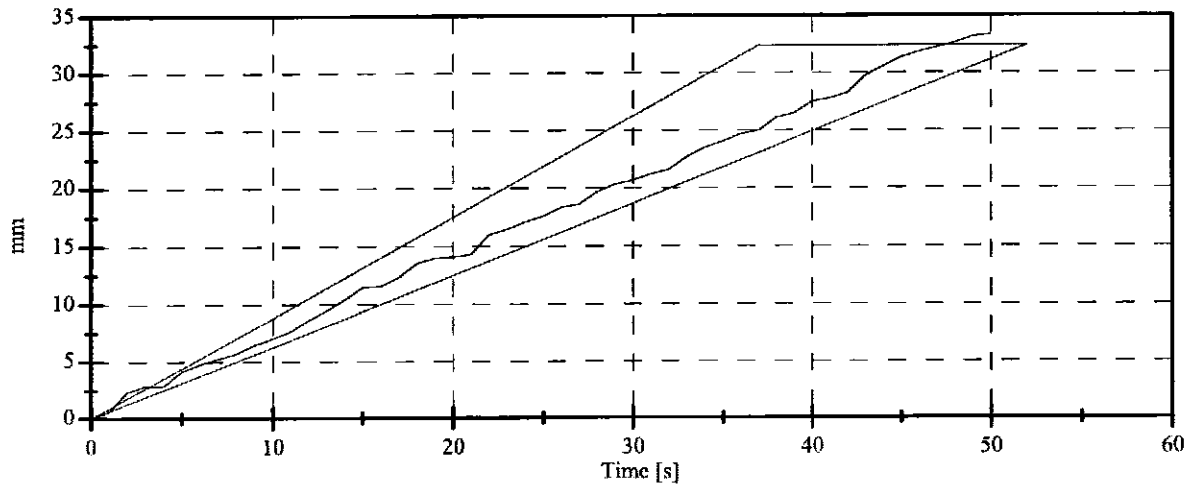
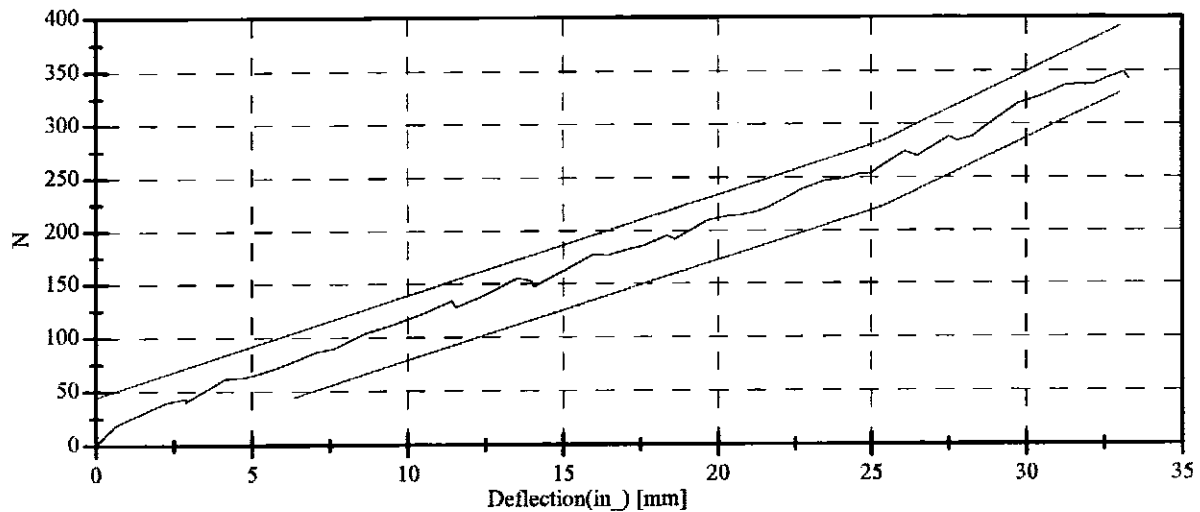
Abdominal Test
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 03-07-05

Sequential Test Number: 1 File: 269ab 03-07-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	155.06 N	Passed
Force at 19.05 mm :	162.98-220.99 N	191.98 N	Passed
Force at 25.40 mm :	221.97-280.02 N	253.75 N	Passed
Force at 33.02 mm :	324.99-391.00 N	348.79 N	Passed

ABDOMINAL COMPRESSION TEST



Lumbar Spine Test

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269

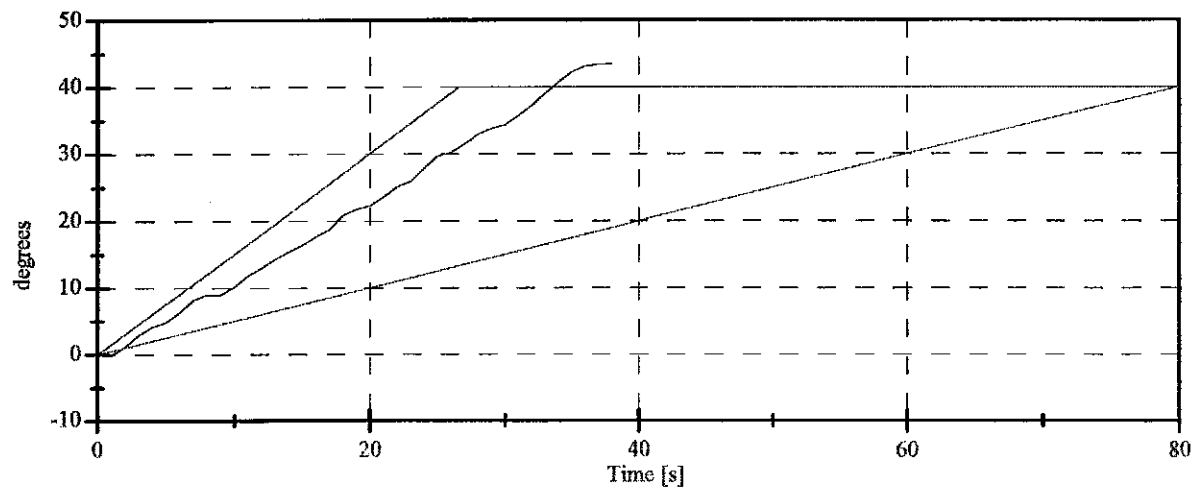
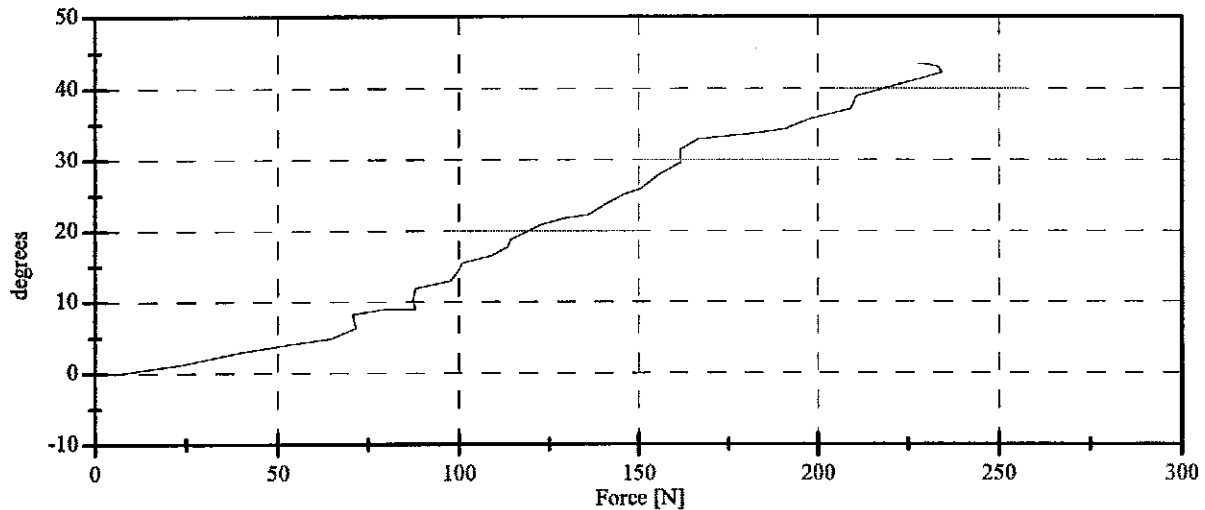
Date: 03-07-05

Sequential Test Number: 1 File: 269spine 03-07-05

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	1.18 N	Passed
Force at 20 Deg:	97.86-151.24 N	123.11 N	Passed
Force at 30 Deg:	151.24-204.62 N	161.66 N	Passed
Force at 40 Deg:	204.62-258.00 N	223.54 N	Passed
Return Angle	12 Deg Max	4.79 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 1
 Date: March 7, 2005 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 1
Date: March 7, 2005 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

EXTERNAL DIMENSIONS
PRE-TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 1
Date: March 7, 2005 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	900
RH- Rib Height (mm)	502 - 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	514
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	384

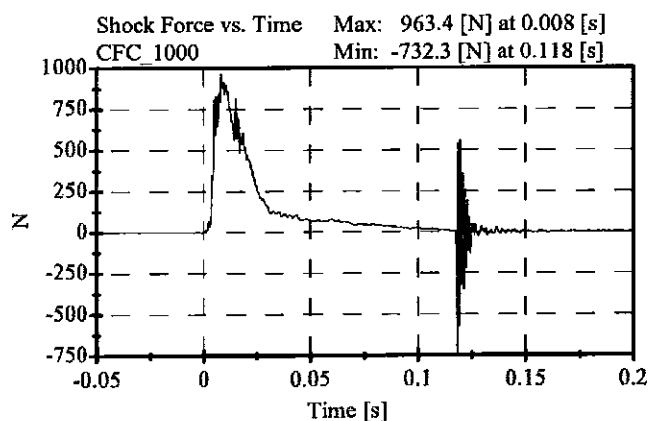
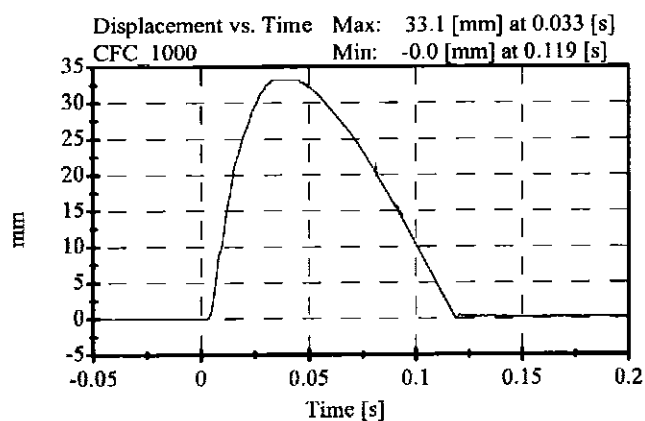
REMARKS: None

Shock Impact Low (3.05 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 01-14-05

Sequential Test Number: 1 File: 270SL 01-14-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	30.00-35.00 mm	33.11 mm	Passed
Maximum Force:	836.00-1125.00 N	963.38 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	270		
Damper Setting:	5		



Shock Impact Med (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

Date: 01-14-05

Sequential Test Number: 1 File: 270SM 01-14-05

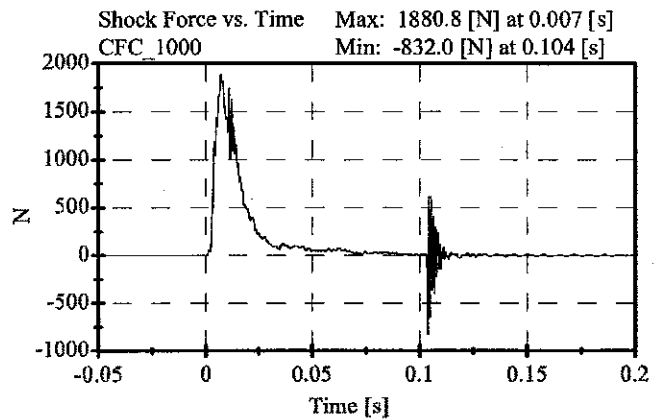
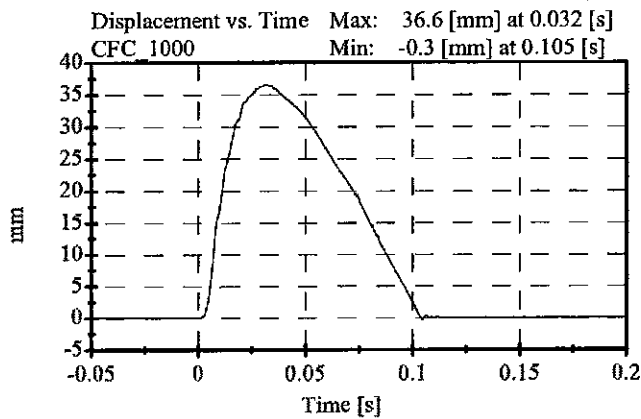
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.7 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Displacement:	32.00-37.00 mm	36.65 mm	Passed
Maximum Force:	1730.00-2099.00 N	1880.84 N	Passed

Impact Test Velocity: 4.27 m/s

Damper Identification: 270

Damper Setting: 5

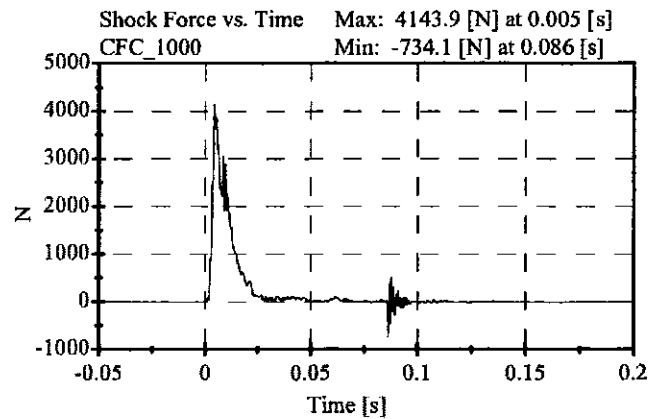
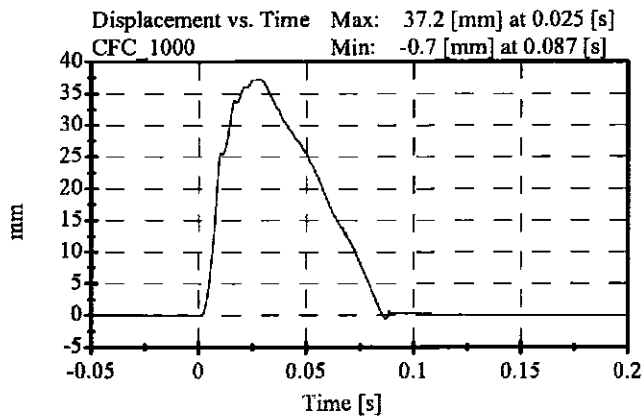


Shock Impact High (6.10 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 01-14-05

Sequential Test Number: 1 File: 270SH1 01-14-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	30.00 %	Passed
Displacement:	33.00-40.00 mm	37.23 mm	Passed
Maximum Force:	3741.00-4448.00 N	4143.90 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	270		
Damper Setting:	5		

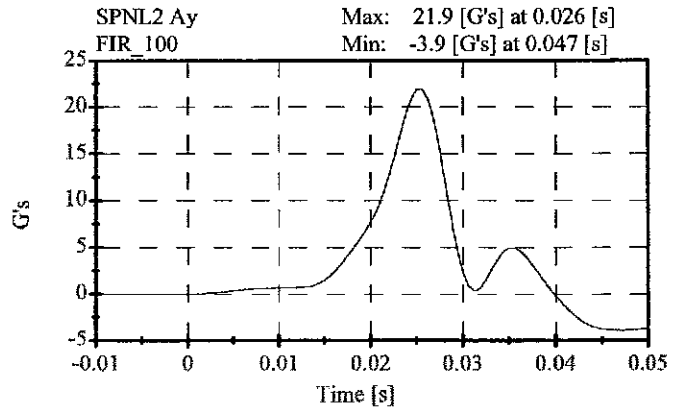
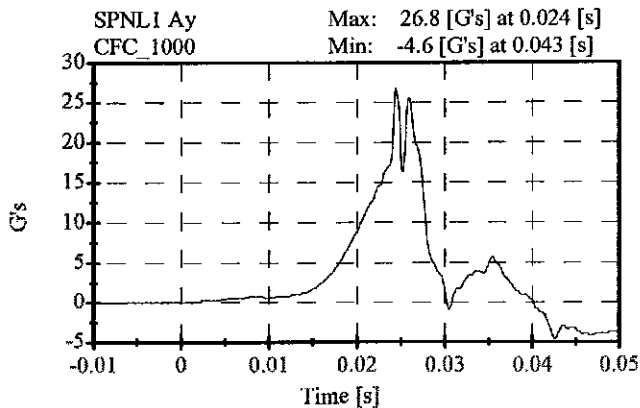
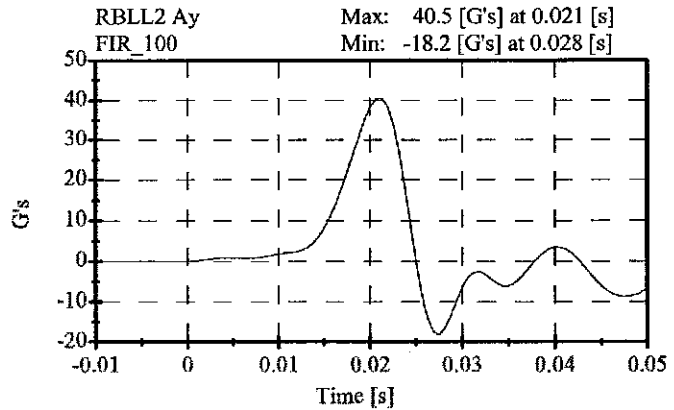
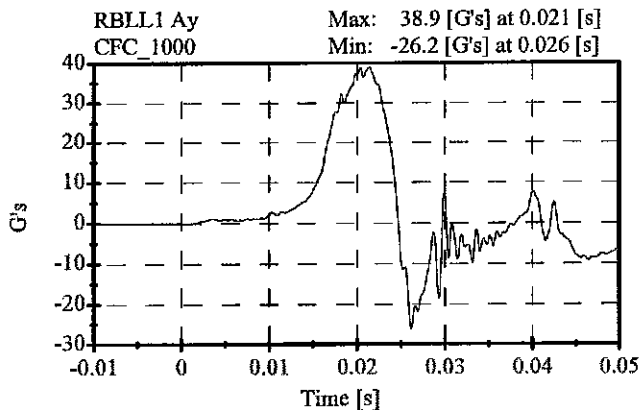
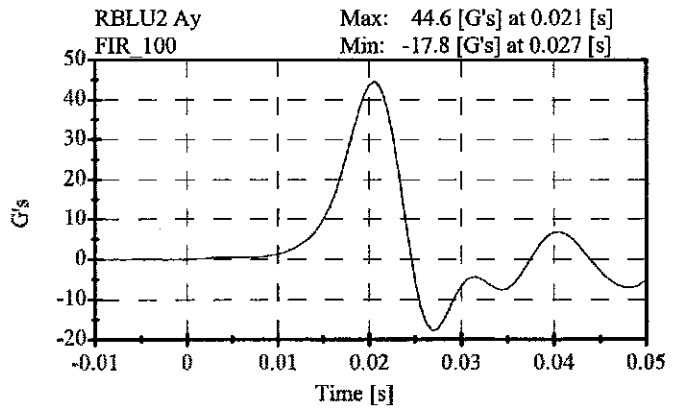
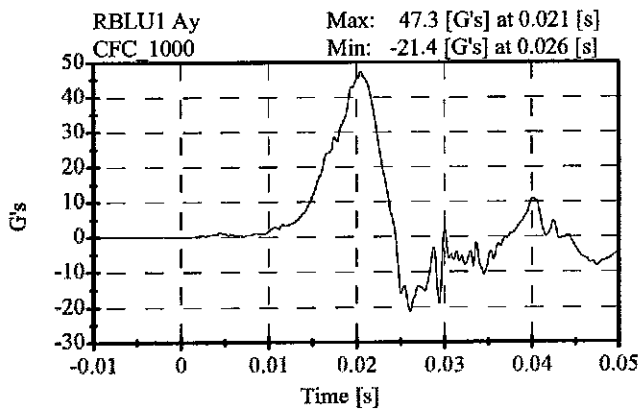


Thorax Impact
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
 Date: 03-04-05

Sequential Test Number: 1 File: 270T 03-04-05
 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	44.55 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	40.50 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.88 G's	Passed



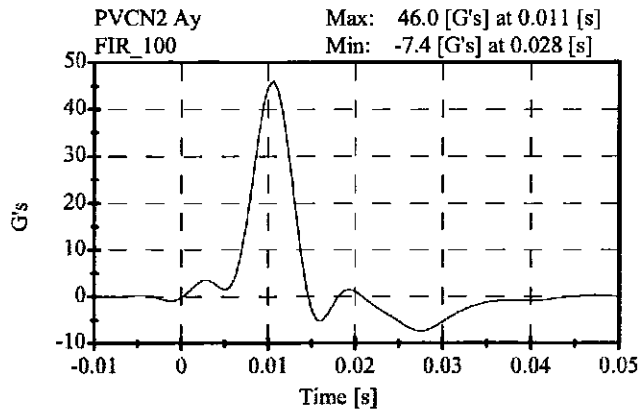
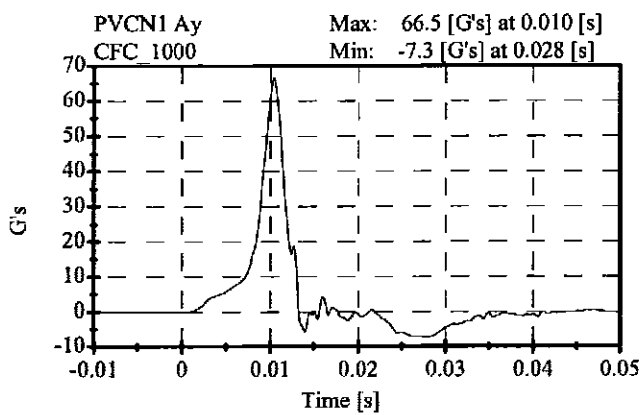
**Pelvic Impact
PRE TEST**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 03-07-05

Sequential Test Number: 1 File: 270P 03-07-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	34.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	46.02 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.2 ms	Passed



Head Drop

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

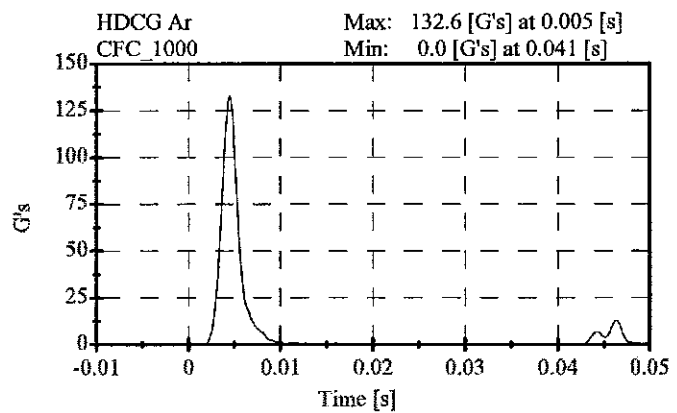
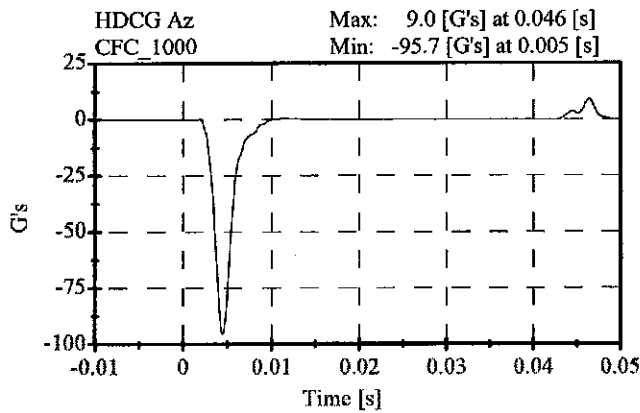
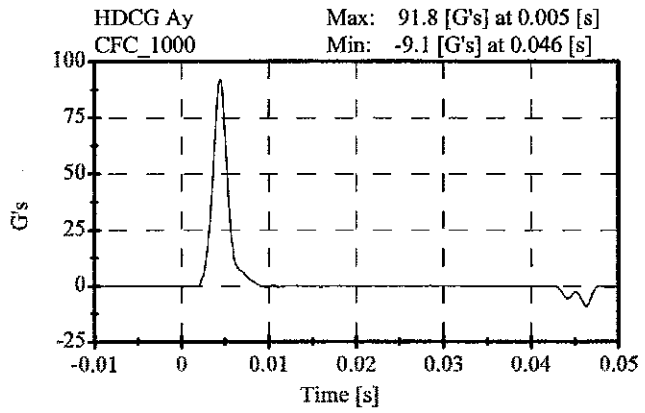
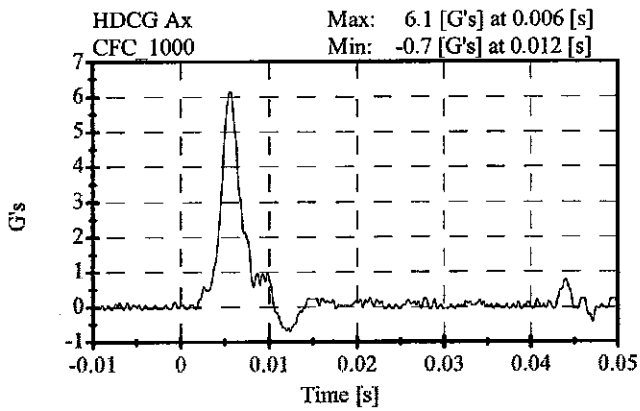
ATD Serial No: 270

Date: 03-03-05

Sequential Test Number: 1 File: 270H1 03-03-05

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	132.63 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	6.15 Gs	Passed
Curve PerCent NonModal:	< 15%	9.53 %	Passed



**Neck Test
PRE TEST**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 03-03-05

Sequential Test Number: 1 File: 270N 03-03-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.25 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.66 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.67 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.30 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	69.81 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	60.40 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	86.33 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	50.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.40 ms	Passed

Neck Test

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

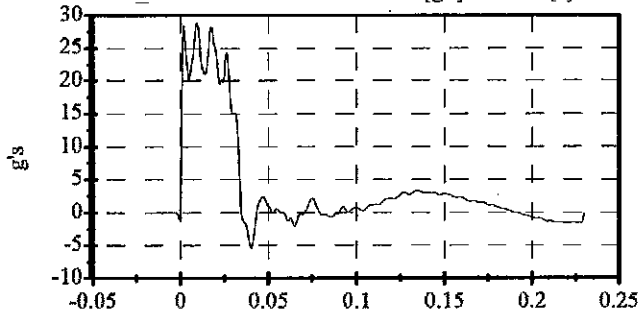
ATD Serial No: 270

Date: 03-03-05

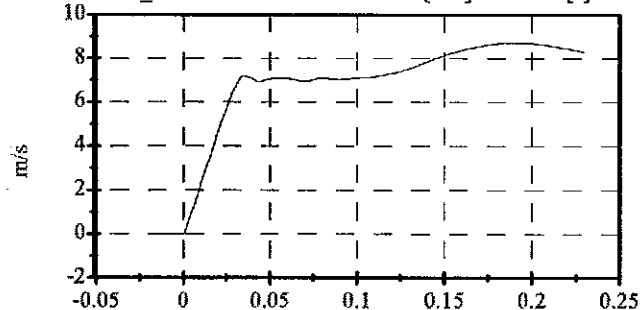
Sequential Test Number: 1 File: 270N 03-03-05

Laboratory Technician: B. Swiecicki

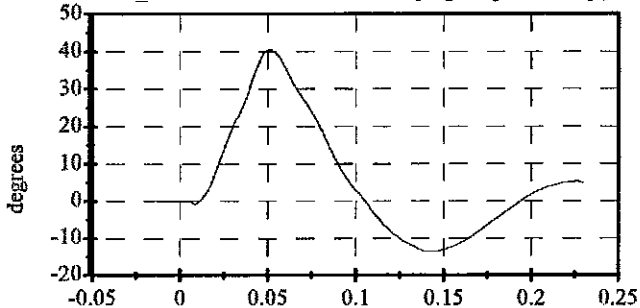
Pend Ax
CFC_180
Max: 28.8 [g/s] at 0.010 [s]
Min: -5.4 [g/s] at 0.040 [s]



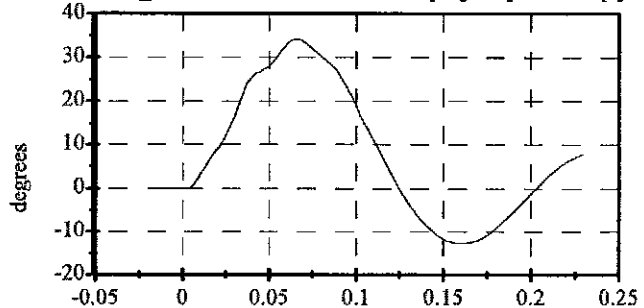
Pend Vx
CFC_180
Max: 8.7 [m/s] at 0.190 [s]
Min: -0.0 [m/s] at -0.000 [s]



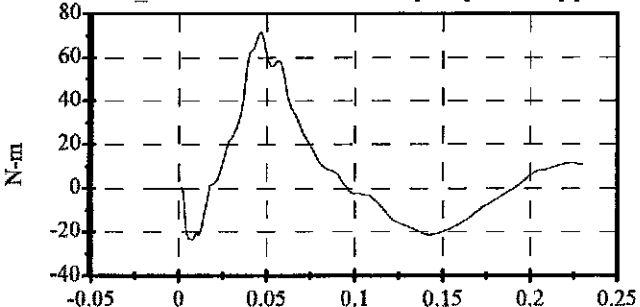
Head Rot
CFC_180
Max: 40.5 [degrees] at 0.051 [s]
Min: -13.6 [degrees] at 0.142 [s]



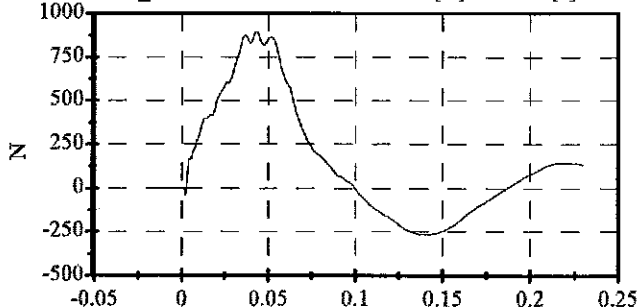
Arm Rot
CFC_180
Max: 34.2 [degrees] at 0.067 [s]
Min: -12.7 [degrees] at 0.160 [s]



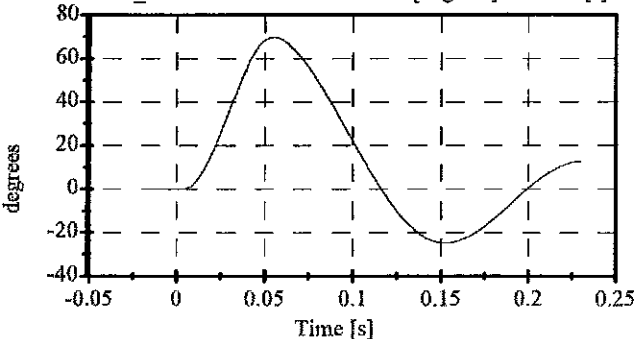
Neck Mx
CFC_600
Max: 71.6 [N-m] at 0.046 [s]
Min: -23.5 [N-m] at 0.008 [s]



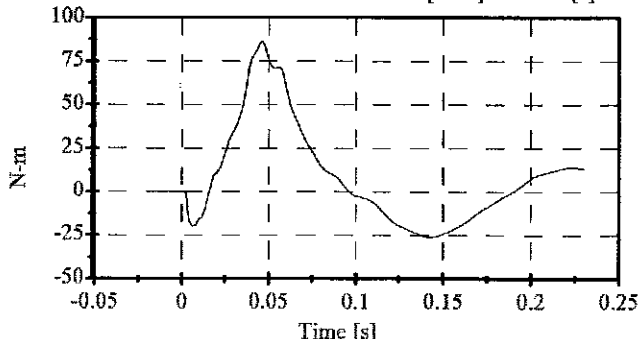
Neck Fy
CFC_1000
Max: 897.6 [N] at 0.043 [s]
Min: -265.0 [N] at 0.142 [s]



Tot Rot
CFC_180
Max: 69.8 [degrees] at 0.056 [s]
Min: -24.8 [degrees] at 0.151 [s]



Mocx
Max: 86.3 [N-m] at 0.046 [s]
Min: -26.0 [N-m] at 0.142 [s]



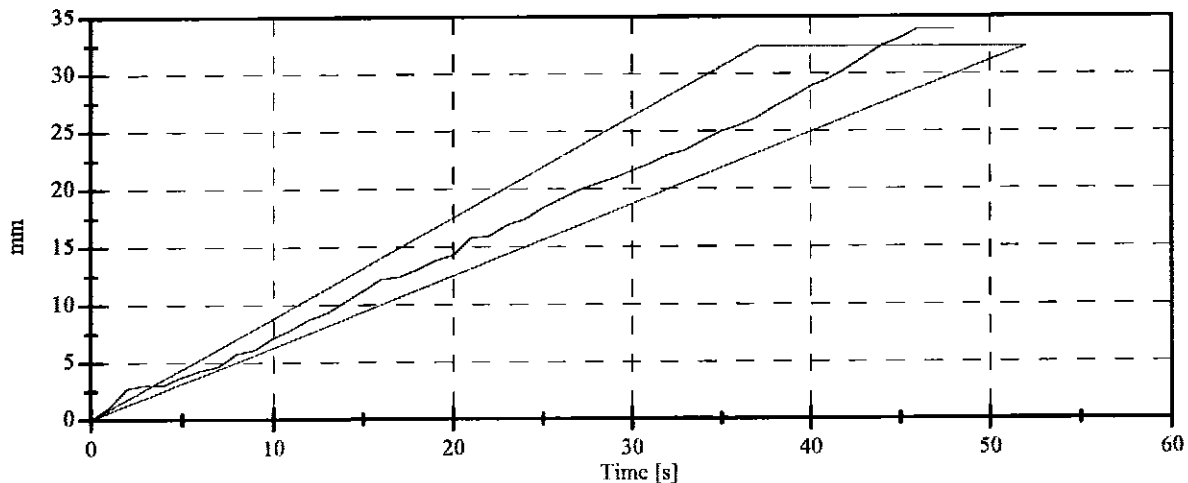
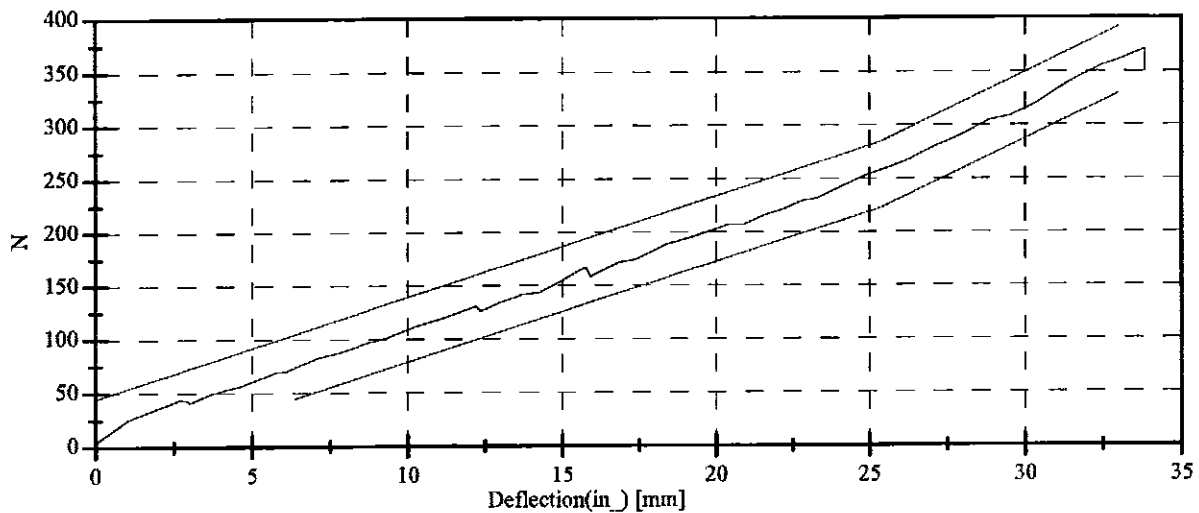
Abdominal Test
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 03-07-05

Sequential Test Number: 1 File: 270ab 03-07-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	133.86 N	Passed
Force at 19.05 mm :	162.98-220.99 N	193.80 N	Passed
Force at 25.40 mm :	221.97-280.02 N	258.50 N	Passed
Force at 33.02 mm :	324.99-391.00 N	361.22 N	Passed

ABDOMINAL COMPRESSION TEST



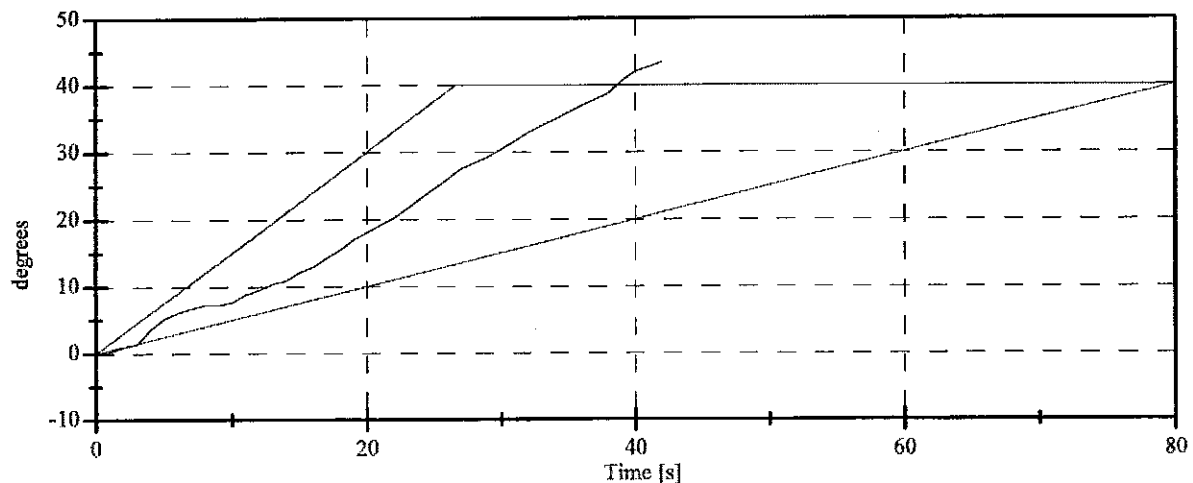
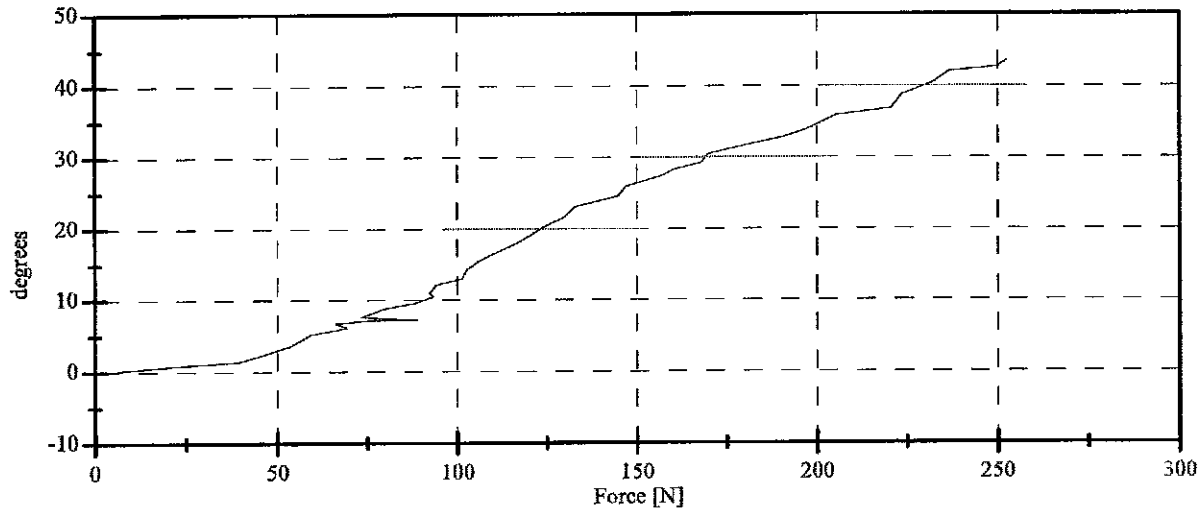
Lumbar Spine Test
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
 Date: 03-07-05

Sequential Test Number: 1 File: 270spine 03-07-05
 Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	1.97 N	Passed
Force at 20 Deg:	97.86-151.24 N	124.16 N	Passed
Force at 30 Deg:	151.24-204.62 N	169.79 N	Passed
Force at 40 Deg:	204.62-258.00 N	232.46 N	Passed
Return Angle	12 Deg Max	5.53 deg	Passed

LUMBAR SPINE FLEXION TEST



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 1
 Date: March 7, 2005 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 269

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 1
Date: May 2, 2005 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269

Sequential Test Number:

1

Date: May 2, 2005

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	381

REMARKS: None

Thorax Impact

POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

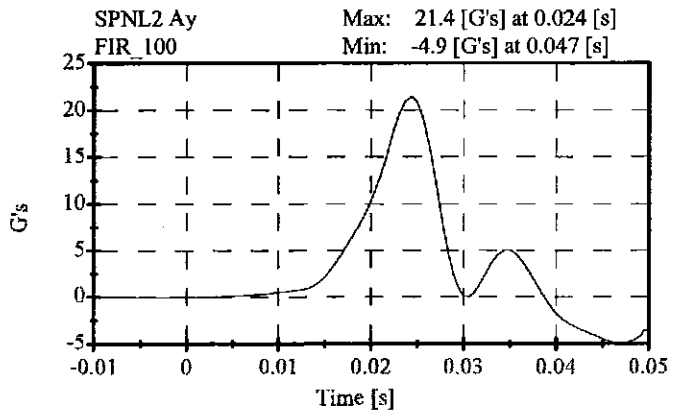
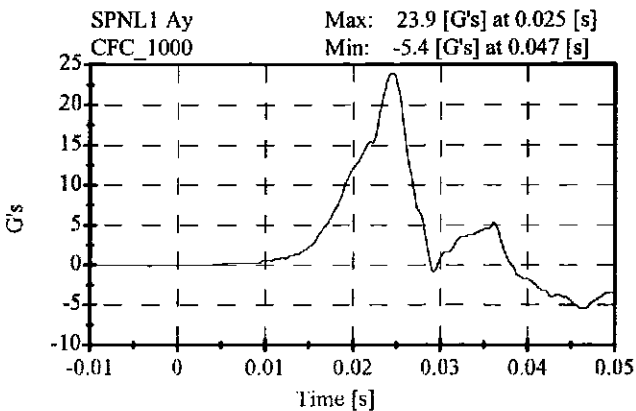
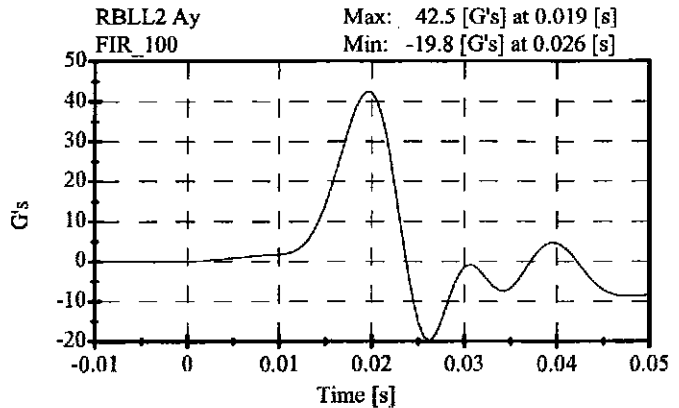
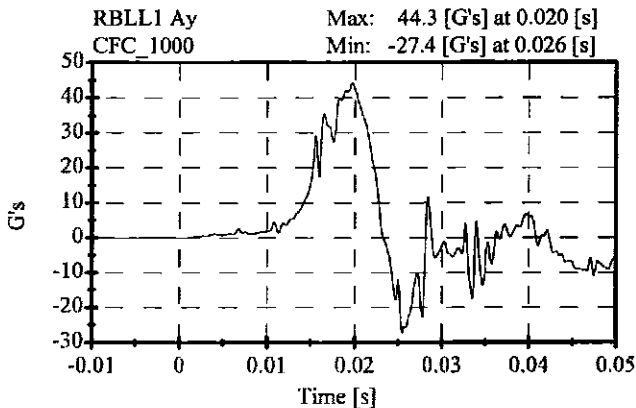
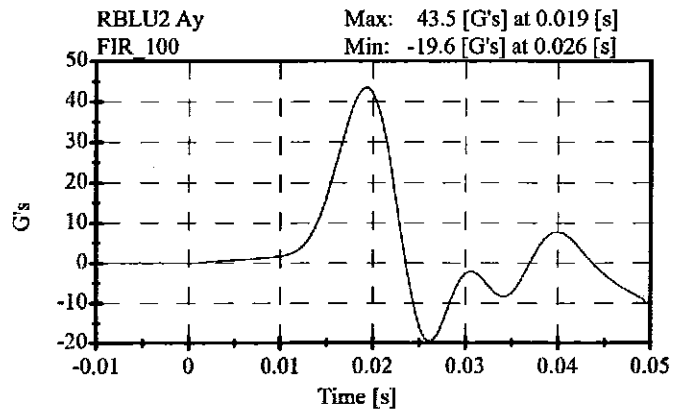
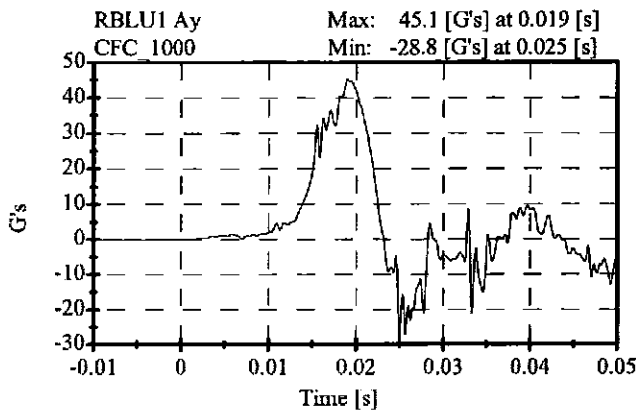
ATD Serial No: 269

Date: 04-29-05

Sequential Test Number: 1 File: 269T 04-29-05

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	43.48 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	42.45 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.42 G's	Passed

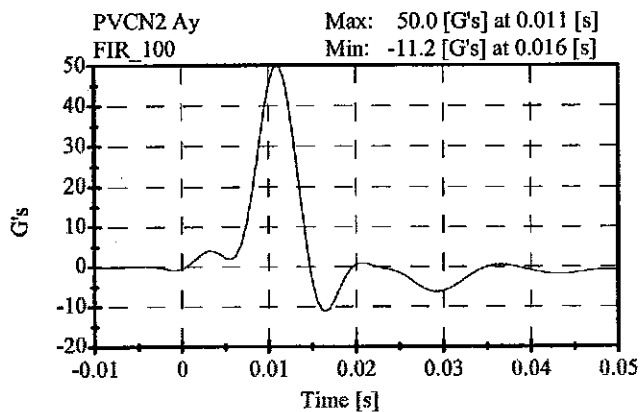
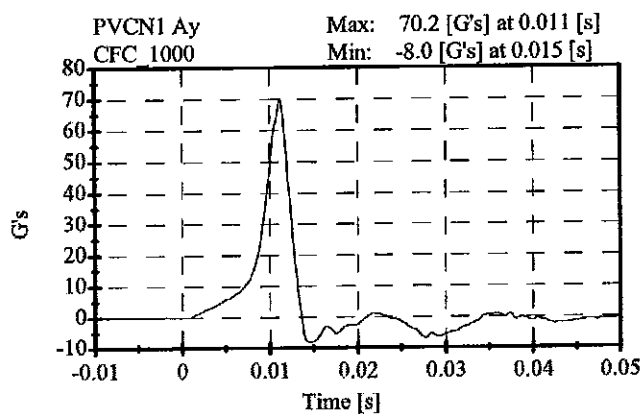


Pelvic Impact
POST TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 04-29-05

Sequential Test Number: 1 File: 269P 04-29-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	49.98 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.3 ms	Passed



Head Drop POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

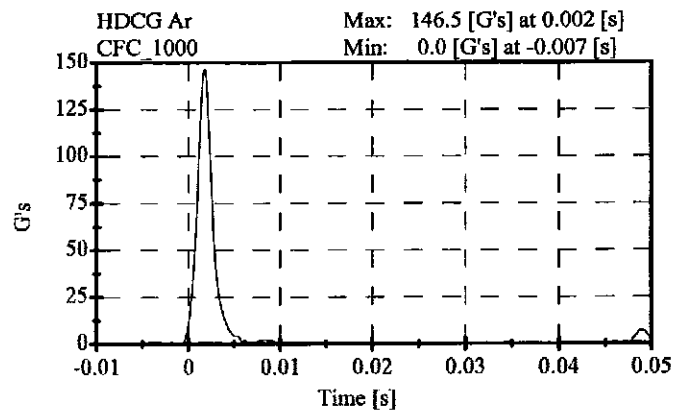
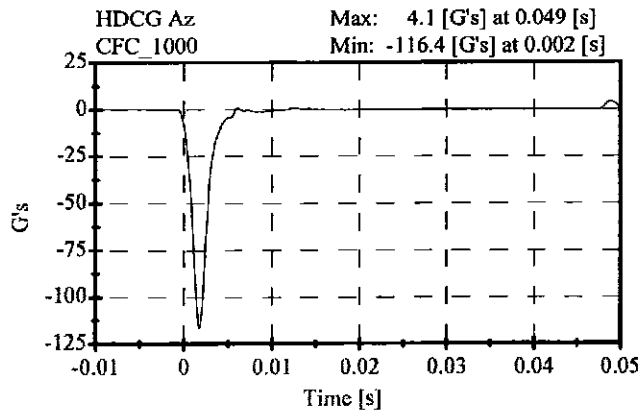
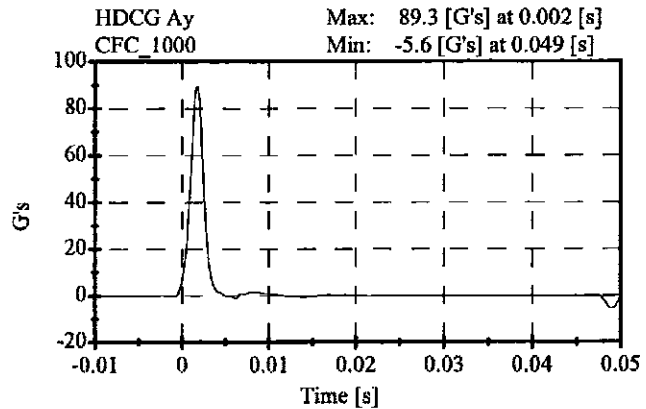
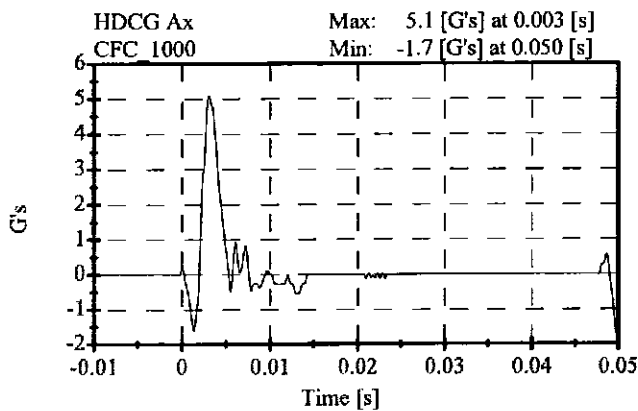
ATD Serial No: 269

Date: 04-25-05

Sequential Test Number: 1 File: 269H 04-25-05

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	146.54 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	5.08 Gs	Passed
Curve PerCent NonModal:	< 15%	4.75 %	Passed



Neck Test
POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 04-27-05

Sequential Test Number: 1 File: 269N 04-27-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.01 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.20 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.02 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.08 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	68.63 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	61.10 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	81.88 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	51.50 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	7.40 ms	Passed

Neck Test POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

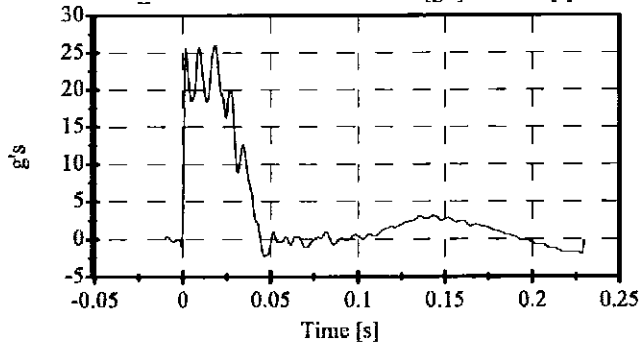
ATD Serial No: 269

Date: 04-27-05

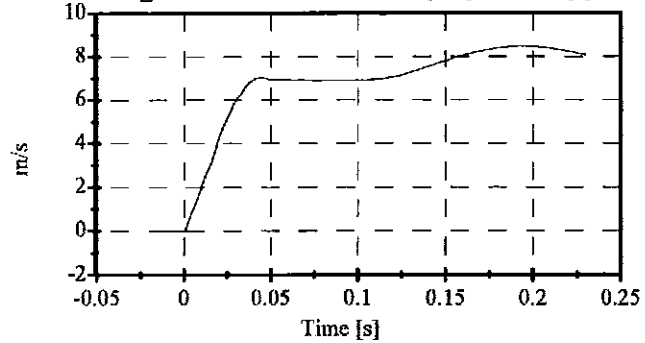
Sequential Test Number: 1 File: 269N 04-27-05

Laboratory Technician: B. Swiecicki

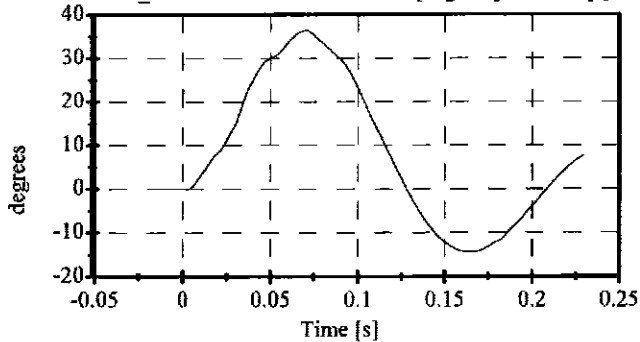
Pend Ax
CFC_180
Max: 26.0 [g's] at 0.019 [s]
Min: -2.2 [g's] at 0.047 [s]



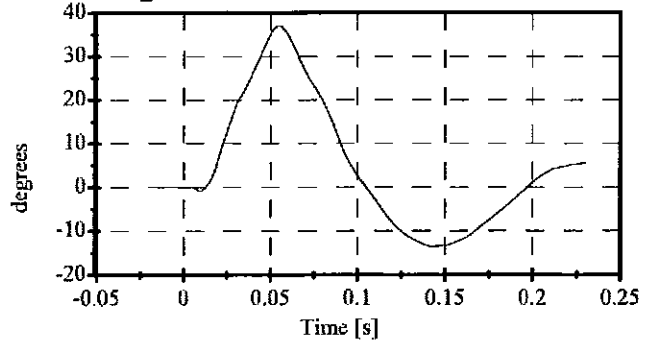
Pend Vx
CFC_180
Max: 8.5 [m/s] at 0.193 [s]
Min: -0.0 [m/s] at -0.000 [s]



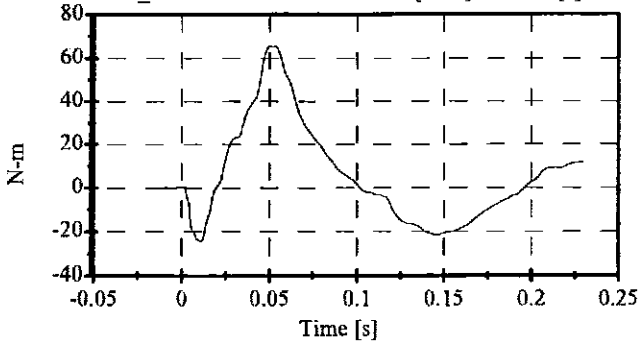
Head Rot
CFC_180
Max: 36.4 [degrees] at 0.070 [s]
Min: -14.4 [degrees] at 0.165 [s]



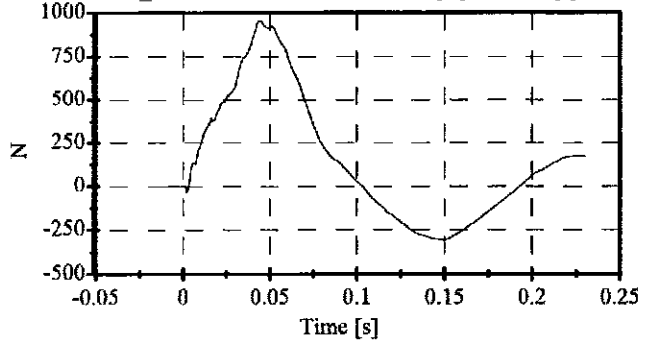
Arm Rot
CFC_180
Max: 37.1 [degrees] at 0.055 [s]
Min: -13.7 [degrees] at 0.142 [s]



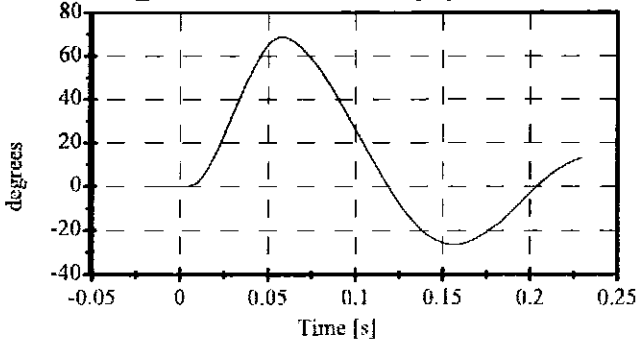
Neck Mx
CFC_600
Max: 65.6 [N-m] at 0.053 [s]
Min: -24.5 [N-m] at 0.011 [s]



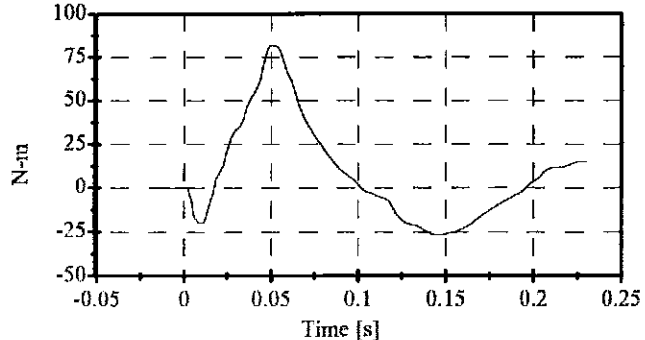
Neck Fy
CFC_1000
Max: 957.6 [N] at 0.044 [s]
Min: -305.1 [N] at 0.149 [s]



Tot Rot
CFC_180
Max: 68.6 [degrees] at 0.058 [s]
Min: -26.3 [degrees] at 0.157 [s]



Mocx
Max: 81.9 [N-m] at 0.050 [s]
Min: -26.9 [N-m] at 0.146 [s]



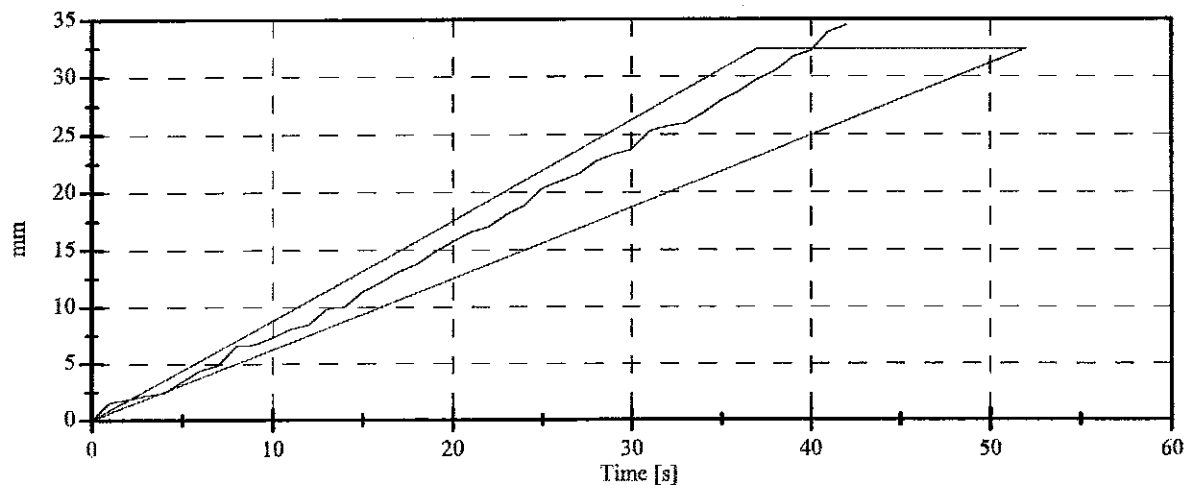
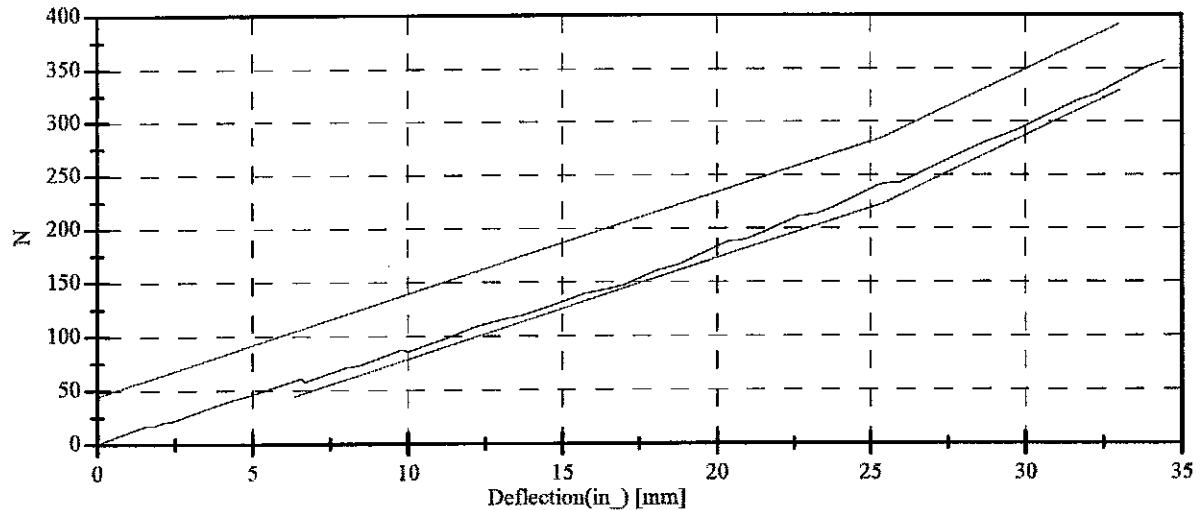
Abdomen Test
POST TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
 Date: 05-02-05

Sequential Test Number: 1 File: 269Ab 05-02-05
 Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	115.34 N	Passed
Force at 19.05 mm :	162.98-220.99 N	166.45 N	Passed
Force at 25.40 mm :	221.97-280.02 N	240.04 N	Passed
Force at 33.02 mm :	324.99-391.00 N	340.50 N	Passed

ABDOMINAL COMPRESSION TEST



**Spine Test
POST TEST**

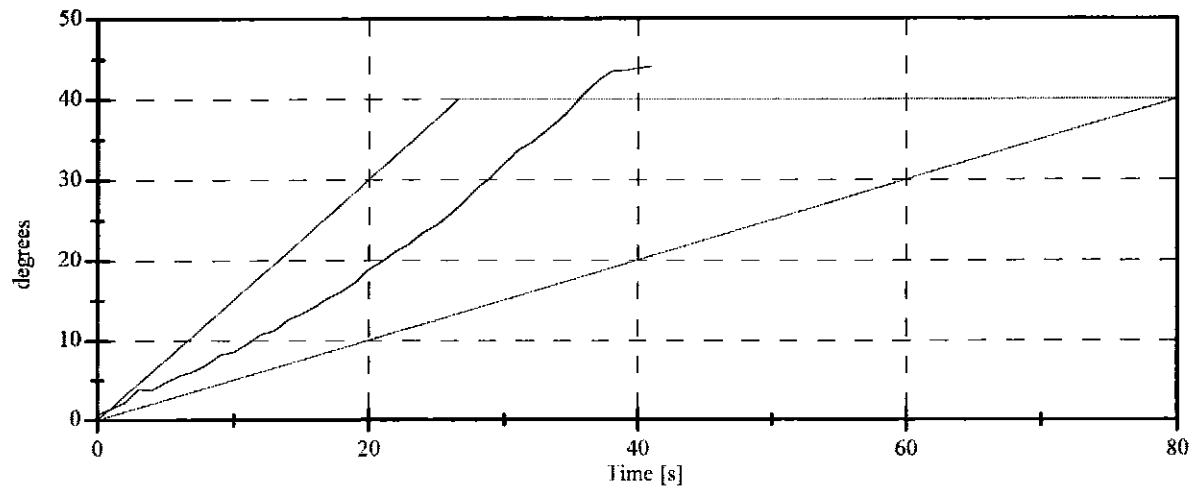
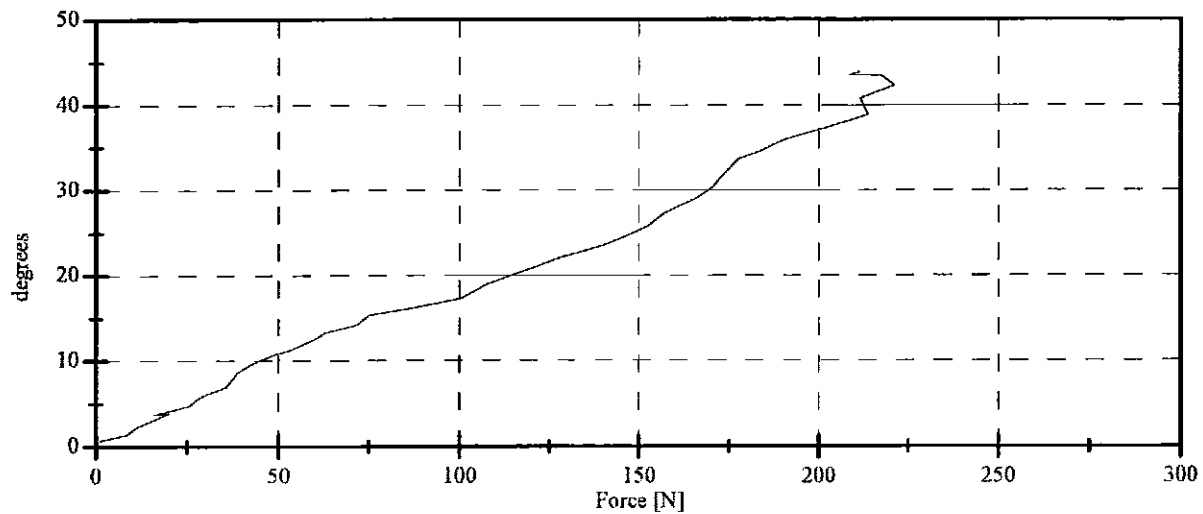
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: 05-02-05

Sequential Test Number: 1 File: 269Spine 05-02-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	1.18 N	Passed
Force at 20 Deg:	97.86-151.24 N	113.94 N	Passed
Force at 30 Deg:	151.24-204.62 N	170.57 N	Passed
Force at 40 Deg:	204.62-258.00 N	211.74 N	Passed
Return Angle	12 Deg Max	2.14 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269
 Date: May 2, 2005

Sequential Test Number: 1
 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270

Sequential Test Number:

1

Date: May 2, 2005

Laboratory Technician:

B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270

Sequential Test Number:

1

Date: May 2, 2005

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	513
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	384

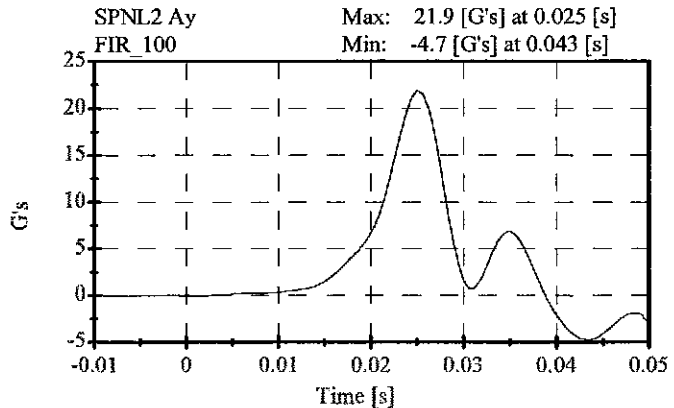
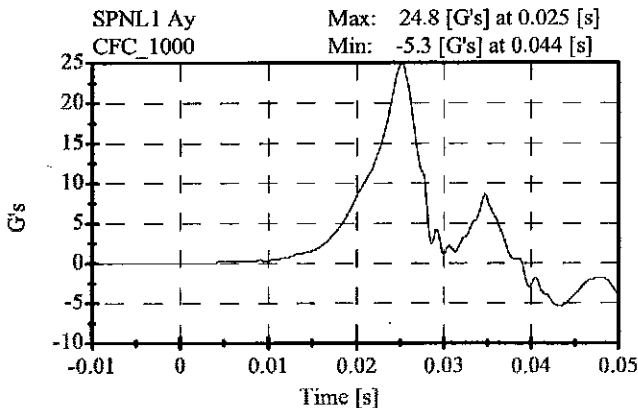
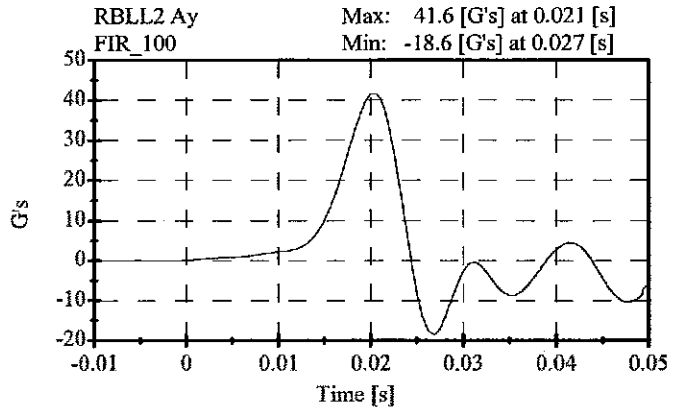
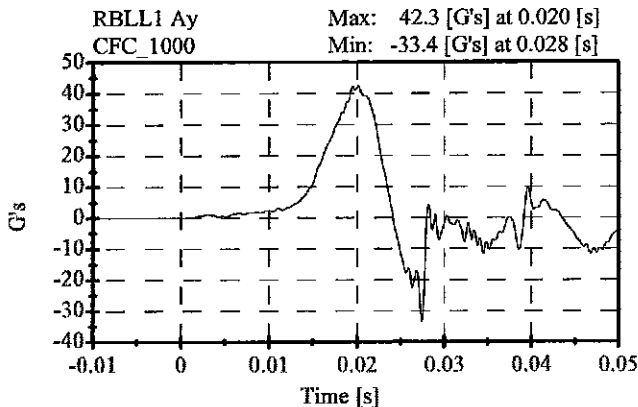
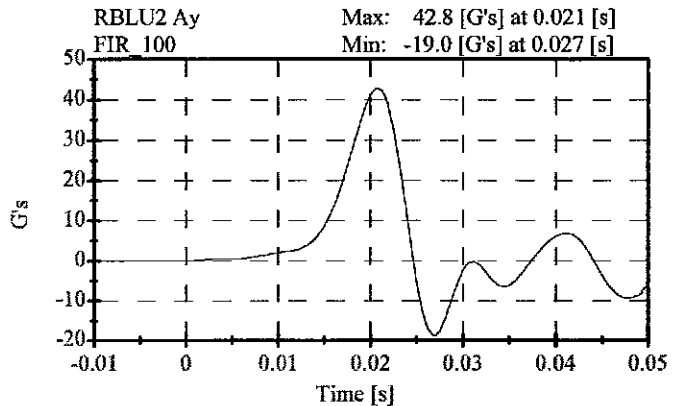
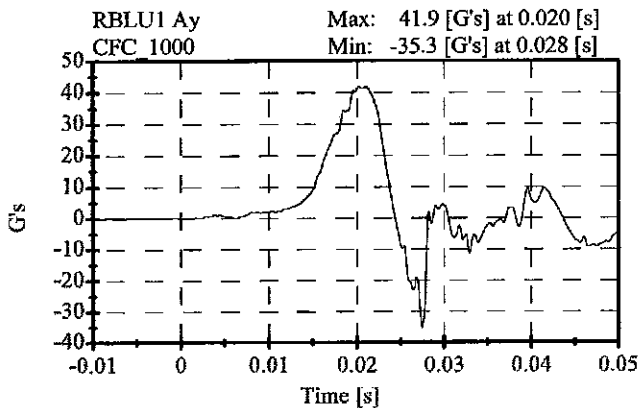
REMARKS: None

Thorax Impact
POST TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 04-29-05

Sequential Test Number: 1 File: 270T2 04-29-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.29 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	42.81 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	41.56 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	21.87 G's	Passed



Pelvic Impact

POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

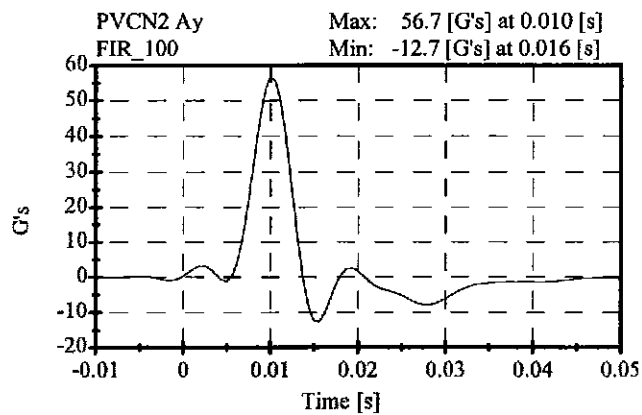
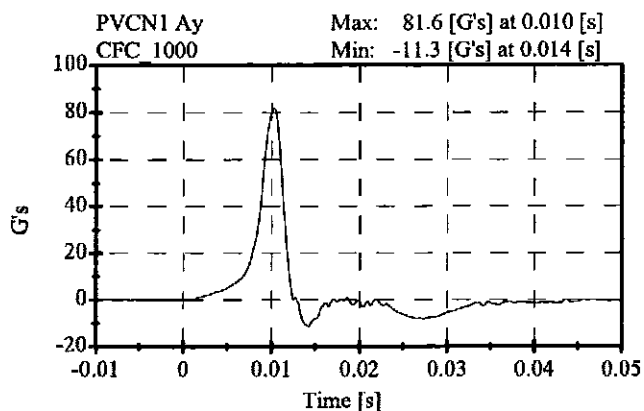
ATD Serial No: 270

Date: 04-29-05

Sequential Test Number: 1 File: 270P 04-29-05

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	56.69 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.3 ms	Passed



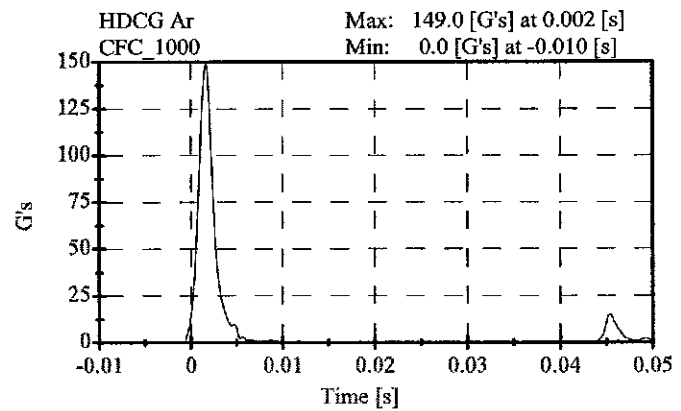
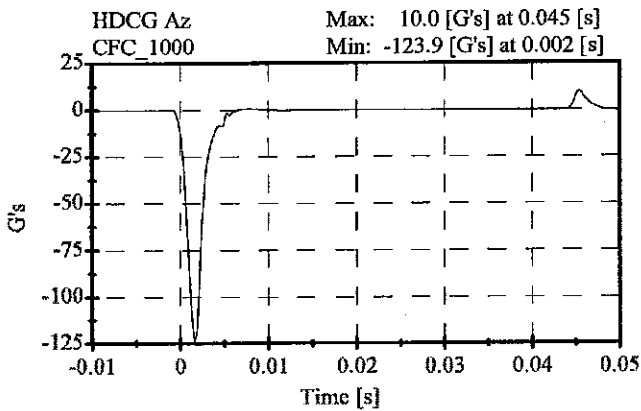
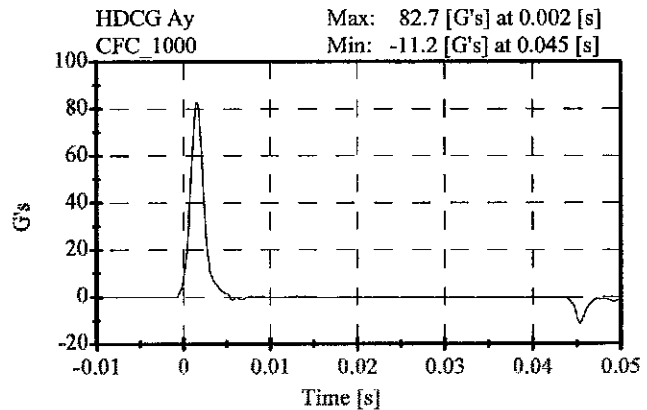
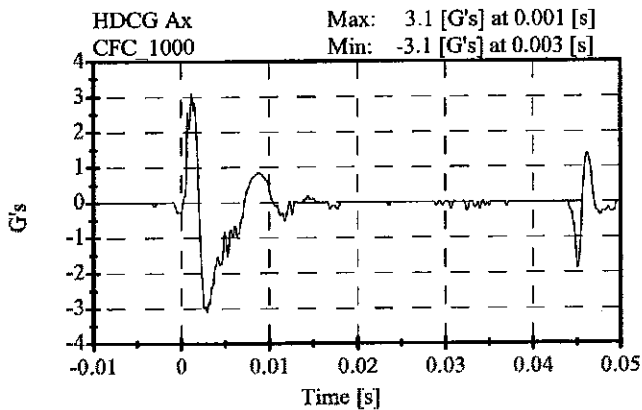
Head Drop
POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 04-26-05

Sequential Test Number: 1 File: 270H 04-25-05
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	149.02 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	3.09 Gs	Passed
Curve PerCent NonModal:	< 15%	10.12 %	Passed



**Neck Test
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 04-27-05

Sequential Test Number: 1 File: 270N 04-27-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	33.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.00 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	1.99 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.25 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.21 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.32 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	69.24 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.80 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	81.58 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	51.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	9.70 ms	Passed

Neck Test POST TEST

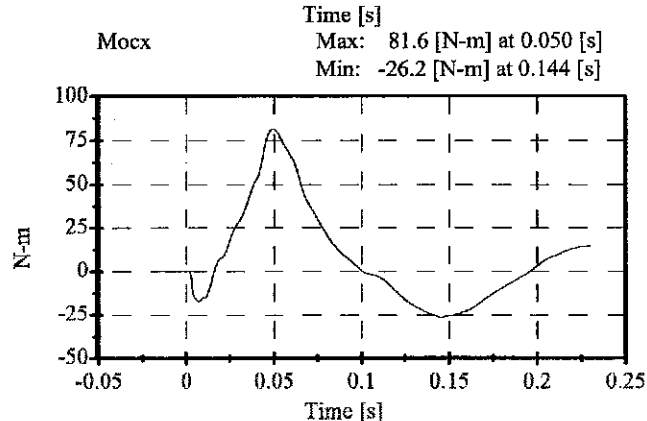
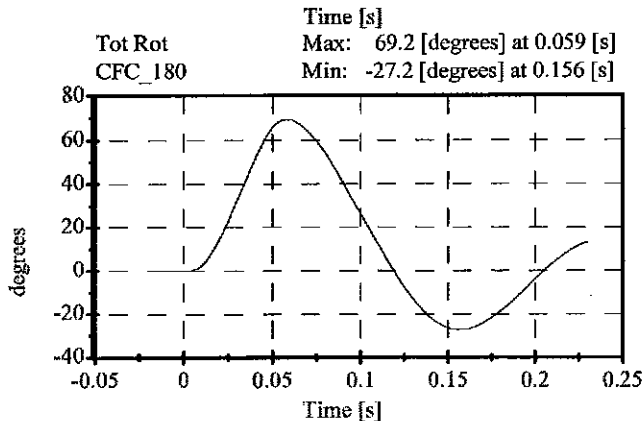
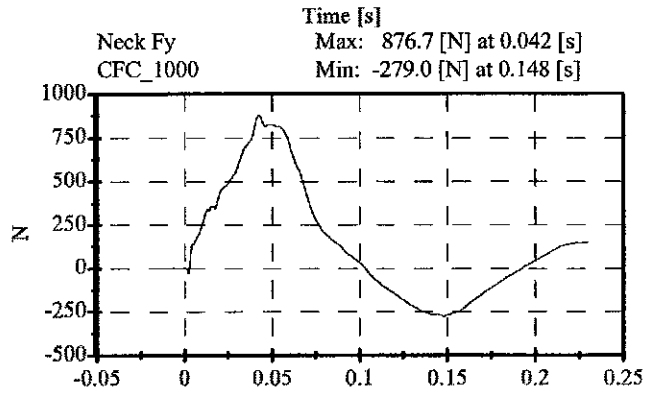
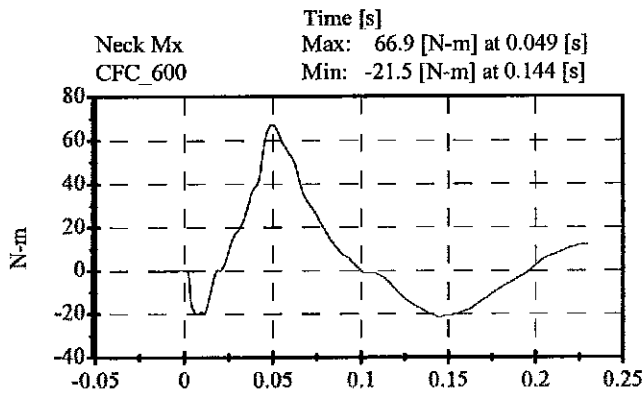
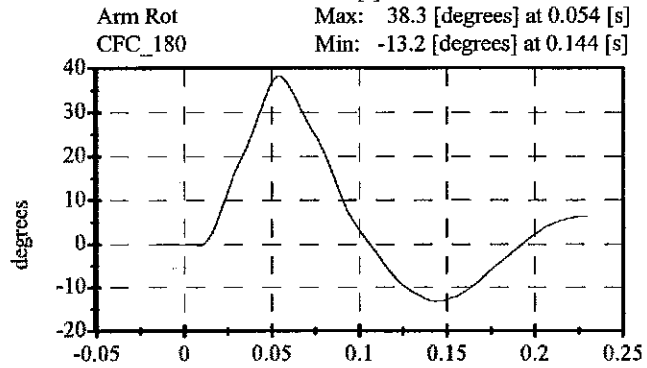
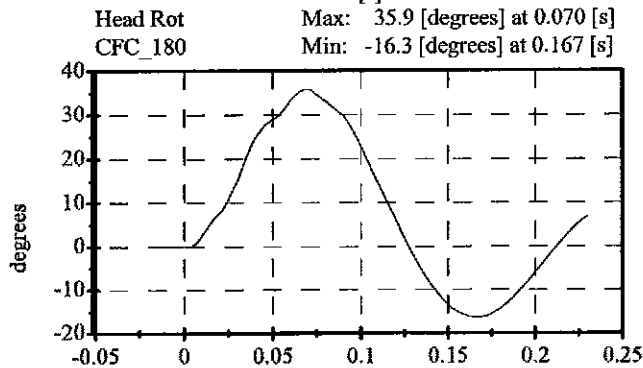
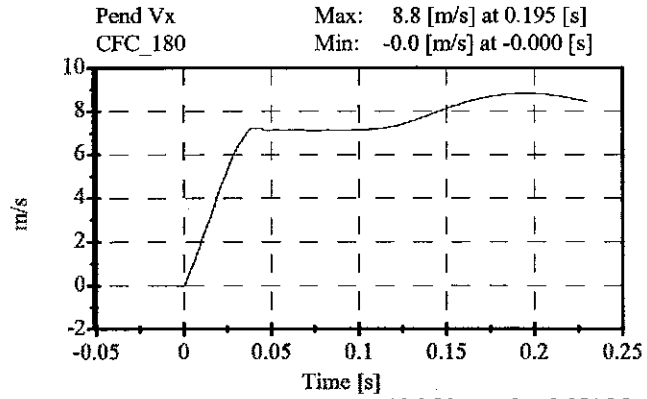
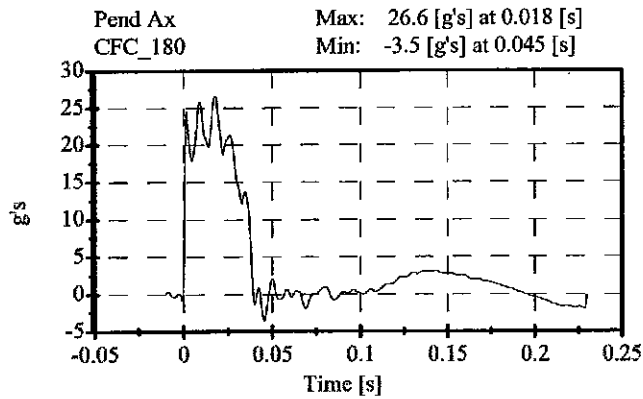
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270

Date: 04-27-05

Sequential Test Number: 1 File: 270N 04-27-05

Laboratory Technician: B. Swiecicki



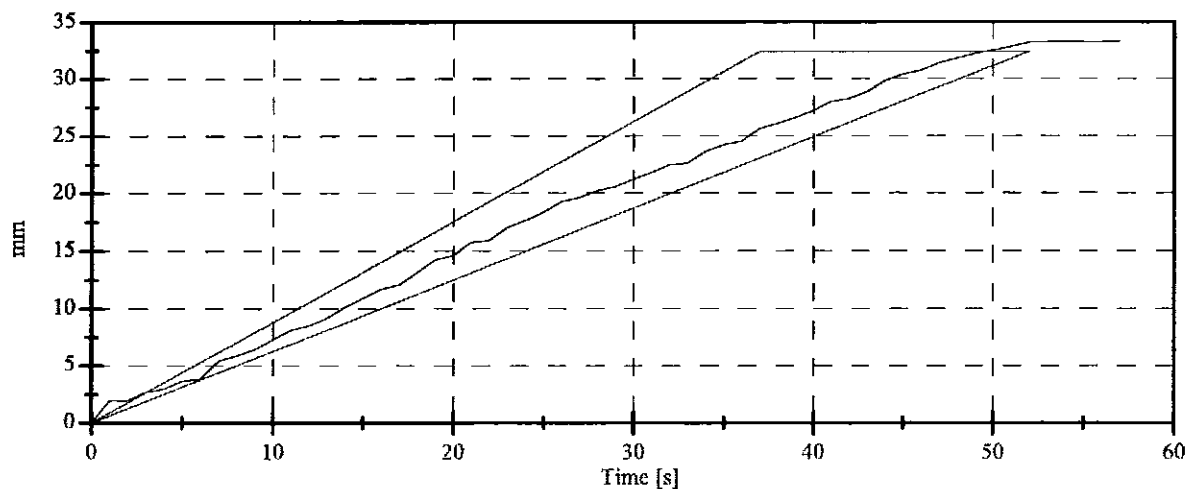
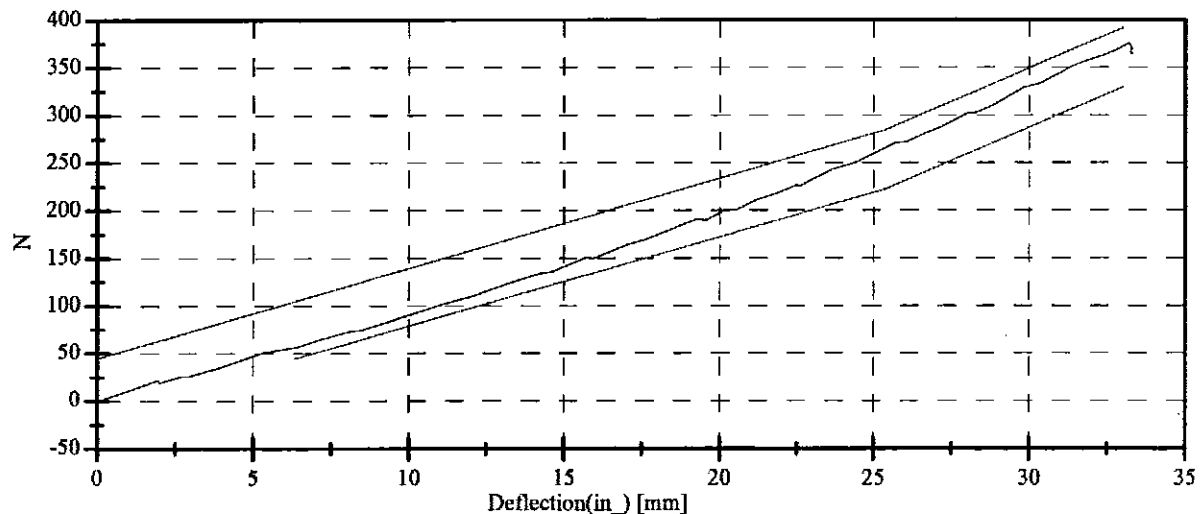
Abdomen Test
POST TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 05-02-05

Sequential Test Number: 1 File: 270Ab 05-02-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Force at 12.95 mm :	104.00-162.00 N	122.59 N	Passed
Force at 19.05 mm :	162.98-220.99 N	190.38 N	Passed
Force at 25.40 mm :	221.97-280.02 N	270.12 N	Passed
Force at 33.02 mm :	324.99-391.00 N	375.24 N	Passed

ABDOMINAL COMPRESSION TEST



**Spine Test
POST TEST**

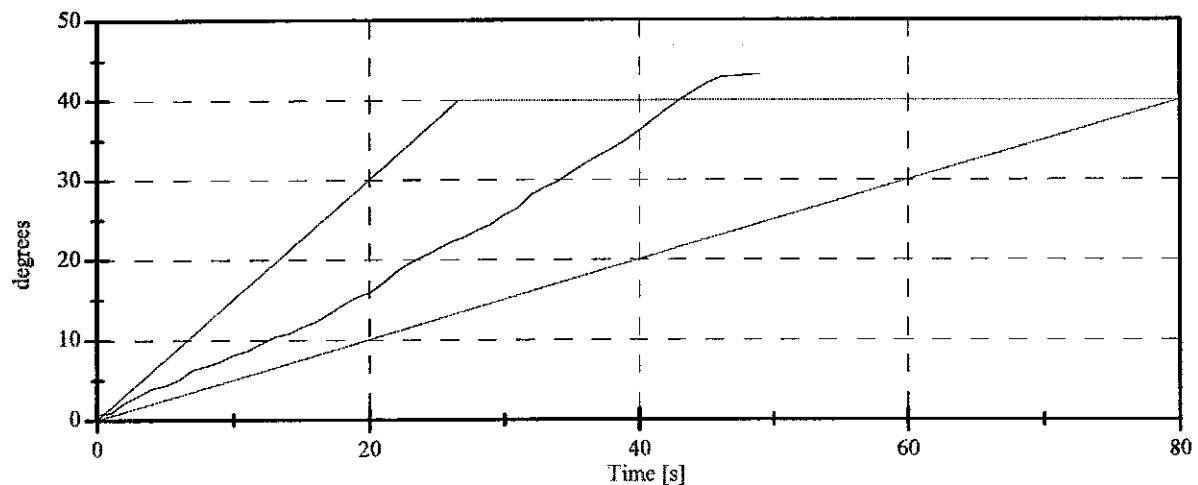
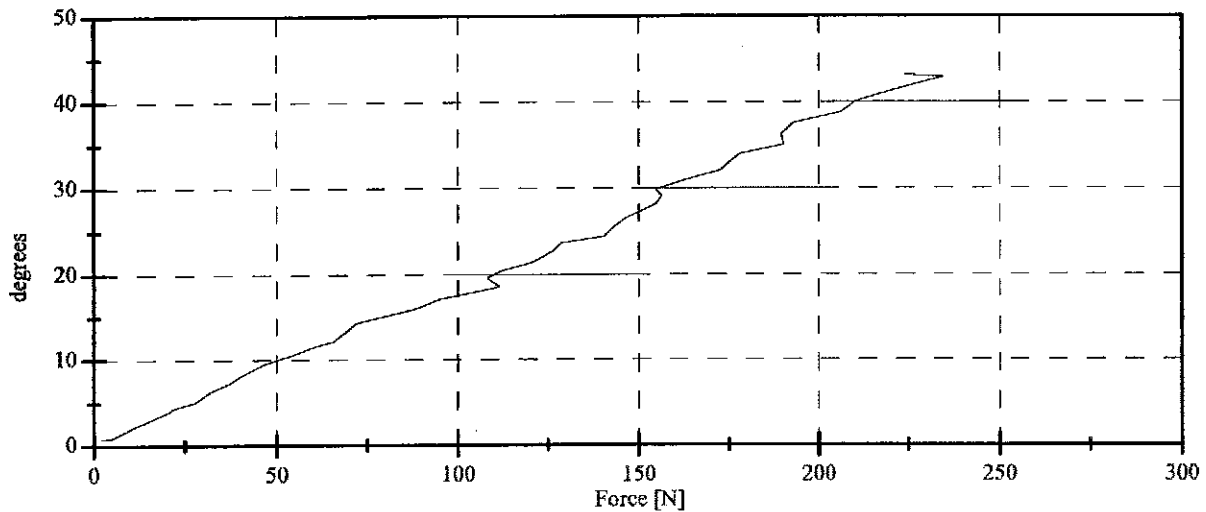
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: 05-02-05

Sequential Test Number: 1 File: 270Spine 05-02-05
Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	36.00 %	Passed
Force at 0 Deg:	0.00-26.69 N	2.23 N	Passed
Force at 20 Deg:	97.86-151.24 N	112.10 N	Passed
Force at 30 Deg:	151.24-204.62 N	154.84 N	Passed
Force at 40 Deg:	204.62-258.00 N	210.17 N	Passed
Return Angle	12 Deg Max	2.39 deg	Passed

LUMBAR SPINE FLEXION TEST



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

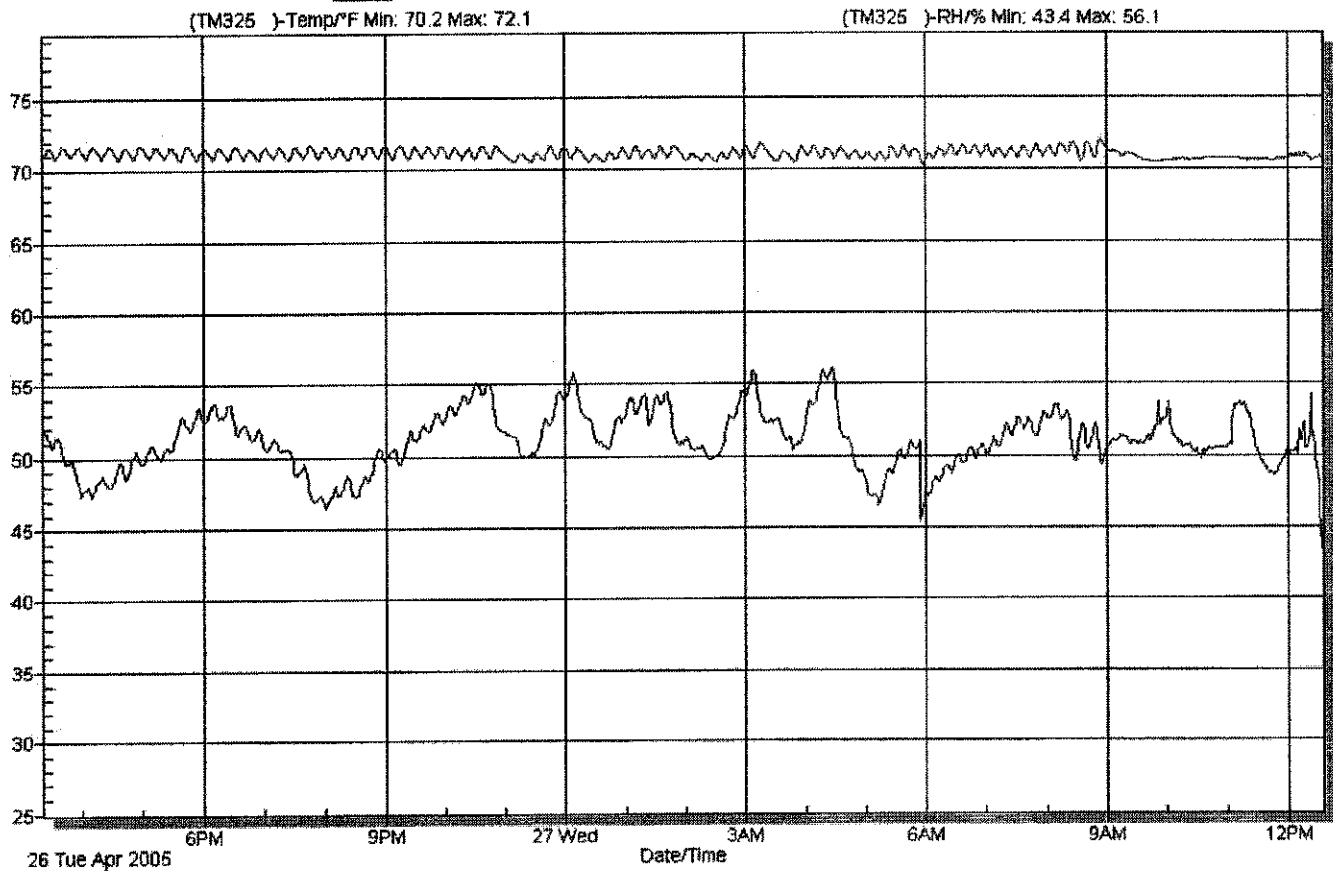
SID H3 Serial No.: 270 Sequential Test Number: 1
 Date: May 2, 2005 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

TEMPERATURE TRACE

Downloaded Data - Wednesday, April 27, 2005



APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

FRONT SID NO.: 269			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P35812	ENDEVCO	12/7/2004
HEAD AY	AC-P18739	ENDEVCO	1/19/2005
HEAD AZ	AC-P19212	ENDEVCO	1/19/2005
UPPER NECK FX	LC-440FX	DENTON	11/6/2004
UPPER NECK FY	LC-440FY	DENTON	11/6/2004
UPPER NECK FZ	LC-440FZ	DENTON	11/6/2004
UPPER NECK MX	LC-440MX	DENTON	11/6/2004
UPPER NECK MY	LC-440MY	DENTON	11/6/2004
UPPER NECK MZ	LC-440MZ	DENTON	11/6/2004
UPPER RIB	AC-P16862	ENDEVCO	4/14/2005
LOWER RIB	AC-P23156	ENDEVCO	4/14/2005
LOWER SPINE	AC-P16645	ENDEVCO	4/14/2005
PELVIS	AC-P16843	ENDEVCO	4/14/2005
UPPER RIB REDUNDANT	AC-P16866	ENDEVCO	4/14/2005
LOWER RIB REDUNDANT	AC-P16656	ENDEVCO	4/14/2005
LOWER SPINE REDUNDANT	AC-P19343	ENDEVCO	4/14/2005
PELVIS REDUNDANT	AC-P16676	ENDEVCO	4/14/2005

REAR SID NO.: 270			
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P16845	ENDEVCO	3/30/2005
HEAD AY	AC-P23788	ENDEVCO	3/30/2005
HEAD AZ	AC-P21393	ENDEVCO	3/30/2005
UPPER NECK FX	LC-205FX	DENTON	11/6/2004
UPPER NECK FY	LC-205FY	DENTON	11/6/2004
UPPER NECK FZ	LC-205FZ	DENTON	11/6/2004
UPPER NECK MX	LC-205MX	DENTON	11/6/2004
UPPER NECK MY	LC-205MY	DENTON	11/6/2004
UPPER NECK MZ	LC-205MZ	DENTON	11/6/2004
UPPER RIB	AC-P15736	ENDEVCO	3/30/2005
LOWER RIB	AC-P16289	ENDEVCO	3/30/2005
LOWER SPINE	AC-P16761	ENDEVCO	3/30/2005
PELVIS	AC-P32221	ENDEVCO	3/30/2005
UPPER RIB REDUNDANT	AC-P16593	ENDEVCO	3/30/2005
LOWER RIB REDUNDANT	AC-P23142	ENDEVCO	3/30/2005
LOWER SPINE REDUNDANT	AC-P21516	ENDEVCO	3/30/2005
PELVIS REDUNDANT	AC-P23960	ENDEVCO	3/30/2005

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	AC-P23139	ENDEVCO	10/27/2004
RIGHT FRONT SILL (Y)	AC-P13323	ENDEVCO	10/27/2004
RIGHT FRONT SILL (Z)	AC-P22943	ENDEVCO	10/27/2004
RIGHT REAR SILL (X)	AC-P16625	ENDEVCO	3/23/2005
RIGHT REAR SILL (Y)	AC-P23178	ENDEVCO	3/23/2005
RIGHT REAR SILL (Z)	AC-J33843	ENDEVCO	3/23/2005
REAR FLOORPAN ABOVE AXLE (X)	AC-P23976	ENDEVCO	3/23/2005
REAR FLOORPAN ABOVE AXLE (Y)	AC-P18628	ENDEVCO	3/23/2005
REAR FLOORPAN ABOVE AXLE (Z)	AC-P18545	ENDEVCO	3/23/2005
LEFT REAR SILL (Y)	AC-P17539	ENDEVCO	1/7/2005
LEFT FRONT SILL (Y)	AC-9026-042	ICS	3/16/2005
LEFT FRONT DOOR CENTERLINE (Y)	-	-	-
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-9440-045	GS SENSORS	12/1/2004
MID REAR OF LEFT FRONT DOOR (Y)	-	-	-
LEFT FRONT DOOR UPPER CL (Y)	-	-	-
MID REAR OF LEFT REAR DOOR (Y)	-	-	-
LEFT REAR DOOR UPPER CL (Y)	-	-	-
LOWER LEFT B- PILLAR (Y)	AC-P18718	ENDEVCO	1/6/2005
MIDDLE LEFT B-PILLAR (Y)	AC-P21399	ENDEVCO	12/2/2004
LOWER LEFT A-PILLAR (Y)	AC-FGP39	ICS	3/22/2005
UPPER LEFT A-PILLAR (Y)	AC-P23155	ENDEVCO	12/2/2004
FRONT SEAT TRACK (Y)	AC-P23136	ENDEVCO	12/3/2004
REAR SEAT TRACK (Y)	AC-P18728	ENDEVCO	1/7/2005
VEHICLE CG (X)	AC-P19111	ENDEVCO	3/24/2005
VEHICLE CG (Y)	AC-P23161	ENDEVCO	3/24/2005
VEHICLE CG (Z)	AC-P24011	ENDEVCO	3/24/2005
MDB CG (X)	AC-C16433	ENDEVCO	3/31/2005
MDB CG (Y)	AC-C16416	ENDEVCO	3/31/2005
MDB CG (Z)	AC-C16499	ENDEVCO	3/31/2005
MDB REAR FRAME MEMBER (X)	AC-C14948	ENDEVCO	3/31/2005
MDB REAR FRAME MEMBER (Y)	AC-C16680	ENDEVCO	3/31/2005

REMARKS: None